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RESEARCHES,

Concerning

THE INSTITUTIONS & MONUMENTS

OF

the Ancient Inhabitants

OF

AMERICA,

with Descriptions & Views

OF SOME OF THE MOST

Striking Scenes

in the

CORDILLERAS!

Written in French by

ALEXANDER DE HUMBOLDT,

& Translated into English by

Helen Maria Williams.

Vol. II.

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DETACHED MASS OF THE PYRAMID OF CHOLULA.

LONDON:

Published by Longman, Hurst, Rees, Orme & Brown, J. Murray, & H. Colburn.

1814.

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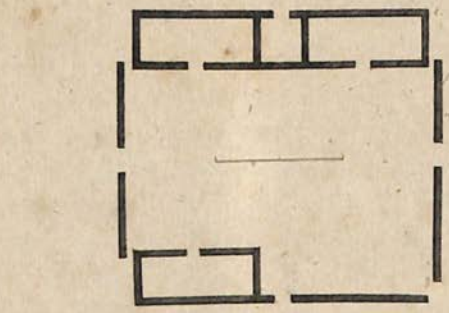

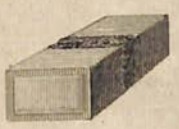

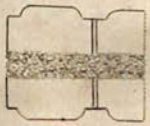

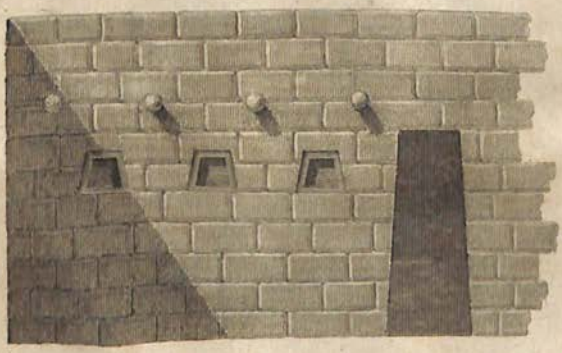

House of the Inca, at Callo.

Pub.d by Longman, Hurst, Rees, Orme, & Brown, Aug.t 1.st 1814.

HOUSE OF THE INCA AT CALLO,

IN THE

Kingdom of Quito.

PLATE XXIV.

When Tupac-Yupanqui and Huayna-Capac, father of the unfortunate Atahualpa, had completed the conquest of the kingdom of Quito, they not only caused magnificent roads to be formed on the ridge of the Cordilleras, but, in order to facilitate the communications between the capital and the most northerly provinces of their empire, they ordered that inns *(tambos)*, magazines, and houses, for the prince and his suite, should be built on the road from Cuzco to Quito, at regular distances. These *tambos*, and houses of the Inca, to which other travellers have given the name of palaces, existed during several ages in that part of the great road which leads from Cuzco to Caxamarca. The country is indebted to the last conquerors of the race of Manco-Capac only for the construction of those

edifices, of which we now find the ruins from the province of Caxamarca, the southern limit of the ancient kingdom of Quito, as far as the mountains of Los Pastos. Among these edifices one of the most celebrated, and the best preserved, is that of Callo, or *Caio*, described by La Condamine, Don Jorge Juan, and Ulloa, in their travels to Peru. The descriptions of those travellers are very imperfect; and the drawing of the house of the Inca, made by Ulloa, is so unlike the plan on which it was really constructed, that we are almost tempted to think it is merely imaginary.

In the month of April, 1802, in an excursion to the volcano of Cotopaxi, M. Bonpland and myself visited these slight remains of Peruvian architecture, and I sketched the edifice represented in the 24th plate. On my return to Quito, I showed my sketches, and the plate contained in Ulloa's Travels, to some very old monks of the order of St. Augustin. No person was better acquainted than themselves with the ruins of Callo, which were situate on ground belonging to their convent; they formerly inhabited a country house in the neighbourhood; and they assured me, that since 1750, and even before that period, the Inca's house was always in the same state as at present. It is probable, that Ulloa wished to represent a monument *repaired;* and that he imagined the existence of inside

walls*, wherever he saw heaps of rubbish, or accidental elevations of the ground. His plan exhibits neither the real form of the apartments, nor the four great outer doors, which must necessarily have existed from the time when the edifice was built.

We have already observed, that the elevated plain of Quito extends itself between the double ridge† of the Cordillera of the Andes; and is separated from the plain of Llactacunga and Hambato by the heights of Chisinché and Tiopullo, which, like a dyke, extend crossways from the eastern to the western ridge, or from the basaltic rocks of Ruminnahui toward the slender pyramids of the ancient volcano of Ilinissa. From the top of this dyke, which divides its waters between the Pacific and Atlantic Oceans, we discover, in an immense plain covered with pumice stone, the Panecillo of Callo, and the ruins of the house of the Inca Huayna-Capac. The Panecillo, or sugar-loaf, is a conic hillock, about fourscore metres high, covered with small bushes of molina, spermacoce, and cactus. The natives are persuaded, that this hillock, which resembles a bell, and is perfectly regular in its figure, is a tumulus, or one of those numerous hills, which the

* Historical Journey to South America, vol. 1, p. 387, pl. 18.

† See vol. 13, p. 231, and my Collection of Astronomical Observations, vol. 1, p. 309.

ancient inhabitants of this country raised for the interment of the sovereign, or some other distinguished personage. It is alleged, in favour of this opinion, that the Panecillo is wholly composed of volcanic rubbish; and that the same pumice stone, which surrounds its basis, is found also on its summit.

This reason might appear little conclusive in the eyes of a geologist; for the back of the neighbouring mountain of Tiopullo, which is much higher than the Panecillo, is covered also with great heaps of pumice stone, probably owing to ancient eruptions of Cotopaxi and Ilinissa. We cannot doubt, but that in both Americas, as well as in the north of Asia, and on the banks of the Boristhenes, mounds raised by men, and real tumuli of an extraordinary height, are to be seen. Those which are found amid the ruins of the ancient town of Mansiche, in Peru, are not much lower than the sugar-loaf of Callo. It is nevertheless possible, and this opinion even appears to me the most probable, that the latter is a volcanic hillock, isolated on the vast plain of Llactacunga, and to which the natives have given a more regular form. Ulloa, whose authority is of great weight, seems to have adopted the opinion of the natives: he even thinks, that the Panecillo is a military monument; and that it served as a watch tower, to discover what passed in the country, and to ensure the prince's safety

on the first alarm of an unforeseen attack. In the state of Kentucky we equally observe, near ancient fortifications of an oval form, very lofty tumuli, containing human bones, and covered with trees, which Mr. Cutter supposes to be a thousand years old*.

The Inca's house is a little to the south-west of the Panecillo, three leagues distant from the crater of Cotopaxi, and about ten leagues to the south of the city of Quito. This edifice forms a square, each side of which is thirty metres long; four great outer doors are still distinguishable, and eight apartments, three of which are in good preservation. The walls are nearly five metres high and one thick. The doors, similar to those of the Egyptian temples; the niches, eighteen in number in each apartment, distributed with the greatest symmetry; the cylinders for the suspension of warlike weapons; the cut of the stones, the outer side of which is convex, and carved obliquely, all remind us of the edifice at Cannar, which is represented in the twentieth plate. I saw nothing at Callo of what Ulloa calls grandeur and majesty: but what appears to me much more interesting is the uniformity of construction, which is observed in all the Peruvian monuments. It is impossible to examine attentively a single edifice of the time of

* Carey's Pocket Atlas of the United States, 1796, p. 101.

the Incas, without recognising the same type in all the others that cover the ridge of the Andes, on an extent of more than four hundred and fifty leagues, from a thousand to four thousand metres above the level of the ocean. It might be said, that a single architect constructed this great number of monuments, so strictly were this people of mountaineers attached to their domestic habits, their civil and religious institutions, and the form and distribution of their buildings. It will be easy in some future day to ascertain from the drawings contained in this work, whether buildings exist in Upper Canada, as the learned author of the Noticias Americanas asserts, which in the cut of their stones, the form of their doors and small niches, and the distribution of their apartments, display traces of the Peruvian style; and this inquiry is so much the more interesting to those, who devote themselves to historical researches, as we know from sure testimony, that the Incas built the fortress of Cuzco after the model of the most ancien edifices of Tiahuanaco, situate in 17° 12′ south latitude.

The stone made use of for the house of Huayna-Capac, mentioned by Cieça *. under the name of *aposentos de Muñahalo*, is a rock of volcanic origin, a burnt and spongy porphyry with basaltic basis. It was probably ejected by

* Chronica del Peru. cap. 41 (ed. de 1554, p. 108).

the mouth of the volcano of Cotopaxi, for it is the same with the enormous blocks, which I found in great numbers on the plains of Callo and Mulalo. As this monument appears to have been constructed in the beginning of the 16th century, the materials employed in it prove, that it is a mistake to consider as the first eruption of the Cotopaxi that which took place in 1533, when Sebastien de Belalcazar made the conquest of the kingdom of Quito. The stones of Callo are cut in parallelopipedons, not all of the same size, but forming courses as regular as those of Roman workmanship. If the illustrious author of the History of America * could have seen a single Peruvian edifice, he certainly would not have asserted, " that the Indians took the stones just as they were raised out of the quarries; that some were triangular, some square, some convex, some concave;" and that the too highly vaunted art of this people consisted only in the arrangement of these shapeless materials.

During our long abode in the Cordilleras of the Andes, we never found any structure resembling that which is termed Cyclopean. In every edifice that dates from the time of the Incas, the front of the stones is very skilfully cut, while the back part is rugged, and often angular. An excellent observer, Don Juan Larea, has

* Robertson, Hist. of America, vol. 3, p. 432.

remarked, that, in the walls at Callo, the interstices between the outer and inner stones are filled with small pebbles cemented with clay. I did not observe this circumstance; but I have represented it in the 23d plate, from a sketch of Mr. Larea's. We see no vestige of floor, or roof; but we may suppose, that the latter was of wood. We are also ignorant, whether the edifice had originally more than a single story, or not; as the height of its walls has been diminished no less by the avidity of the neighbouring peasantry, who take away the stones for their own use, than by the earthquakes, to which this unfortunate country is continually exposed.

It is probable, that the edifices, which I have heard called at Peru, Quito, and as far as the banks of the river of Amazons, by the name of *Inga-Pilca*, or buildings of the Inca, do not date farther back than the 13th century. Those of Vinaque and Tiahuanaco were constructed at a remoter period; as were the walls of unbaked bricks, which owe their origin to the ancient inhabitants of Quito, the *Puruays*, governed by the *conchocando*, or king of Lican, and by *guastays*, or tributary princes. It were to be wished, that some learned traveller could visit the banks of the great lake of Titicaca, the province of Collao, and more especially the elevated plain of Tiahuanaco, which is the centre of an ancient civilization in South America. On that

spot there still exist some remains of those edifices, which Pedro de Cieça * has described with great simplicity; they seem never to have been finished, and, at the arrival of the Spaniards, the natives attributed the construction of them to a race of white and bearded men, who inhabited the ridge of the Cordilleras long before the foundation of the empire of the Incas. American architecture, we cannot too often repeat, can cause no astonishment, either by the magnitude of its works, or the elegance of their form; but it is highly interesting, as it throws light on the history of the primitive civilization of the inhabitants of the mountains of the new continent.

I have sketched, 1st, the plan of the Inca Huayna-Capac's house: 2d, a part of the inner wall of the most northerly apartment, seen on the inside: 3d, the same part seen on the outside, but within the court. In the external walls, opposite the doors of the apartments, we find, instead of niches, openings looking to the adjacent country. I shall not decide, whether these windows were originally niches *(hocos)*, and opened in times subsequent to the conquest, when this edifice served as a dwelling to some Spanish family. The natives on the contrary believe, that they were made for the purpose of observing, whether an enemy would attempt an attack against the Inca's troops.

* Cieça, cap. 105, p. 255.

CHIMBORAZO

SEEN FROM THE

PLAIN OF TAPIA.

PLATE XXV.

THE mountain is here sketched as it displays itself from the arid plain of Tapia, near the village of Lican, the ancient residence of the sovereigns of Quito, before the conquest of the Inca Tupac-Yupanqui. From Lican to the summit of Chimborazo is nearly five leagues in a straight line. The 16th plate represents this colossal mountain surrounded with a zone of perpetual snow, which, near the equator, maintains itself at four thousand eight hundred metres above the level of the sea. The 25th plate represents Chimborazo as we saw it after very heavy falls of snow, on the 24th of June, 1802, the day immediately following that of our excursion toward the summit. It appeared to me interesting, to give a precise idea of the stupendous

aspect of the Cordilleras, at the two epochas of the *maximum* and *minimum* of the height of the snows.

Travellers who have approached the summits of Mont Blanc and Mont Rose are alone capable of feeling the character of this calm, majestic, and solemn scenery. The bulk of Chimborazo is so enormous, that the part which the eye embraces at once near the limit of the eternal snows is seven thousand metres in breadth. The extreme rarity of the strata of air, across which we see the tops of the Andes, contributes * greatly to the splendour of the snow, and the magical effect of its reflection. Under the tropics, at a height of five thousand metres, the azure vault of the sky appears of an indigo tint †. The outlines of the mountain detach themselves from the sky in this pure and transparent atmosphere, while the inferior strata of the air, reposing on a plain destitute of vegetation, which reflects the radiant heat, are vaporous, and appear to veil the middle ground of the landscape.

The elevated plain of Tapia, which extends to the East as far as the foot of the Altar and of Condorasto, is three thousand metres in height, nearly equal to that of Canigou, one of the highest summits of the Pyrenees. A few plants

* Political Essay on New Spain, vol. 1, p. 77.

† See my Geography of Plants, p. 17.

of schinus molle, cactus, agave, and molina, are scattered over the barren plain: and we see in the foreground lamas (camelus lacma) sketched from nature, and groups of Indians going to the market of Lican. The flank of the mountain presents that gradation of vegetable life, which I have endeavoured to trace in my chart of the Geography of plants, and which may be followed on the western top of the Andes from the impenetrable groves of palm trees to the perpetual snows, bordered by thin layers of lichens.

At three thousand five hundred metres absolute height, the ligneous plants with coriaceous and shining leaves nearly disappear. The region of shrubs is separated from that of the grasses by alpine plants, by tufts of nerteria, valerian, saxifrage, and lobelia, and by small cruciferous plants. The grasses form a very broad belt, covered at intervals with snow, which remains but a few days. This belt, called in the country the *pajonal*, appears at a distance like a gilded yellow carpet. Its colour forms an agreeable contrast with that of the scattered masses of snow; and is owing to the stalks and leaves of the grasses burnt by the rays of the sun in the seasons of great draught. Above the *pajonal* lies the region of cryptogamous plants, which here and there cover the porphyritic rocks destitute of vegetable earth. Farther on, at the limit

of the perpetual ice, is the termination of organic life.

However stupendous the height of Chimborazo, its summit is four hundred metres lower than the point, at which M. Gay-Lussac, in his memorable aerial excursion, made experiments so important both to meteorology and the knowledge of the laws of magnetism. The natives of the province of Quito preserve a tradition, according to which a summit of the eastern ridge of the Andes, now called the Altar *(el Altar)*, part of which fell down in the fifteenth century, was formerly loftier than Chimborazo. In Boutan, the highest mountain of which English travellers have given us the measure, the Soumounang is only 4419 metres (2268 toises) high: but, according to the assertion of Colonel Crawford*, the loftiest summit of the Cordilleras of Thibet is above twenty-five thousand English feet, or 7617 metres (3909 toises). If this calculation be founded on an accurate measurement, a mountain of central Asia is a thousand and ninety metres higher than Chimborazo. To the eye of the real geologist, who, engaged in the study of the *formations* has been accustomed to contemplate nature in all her greatness, the absolute height of mountains is an object of little importance; nor will he be astonished, if hereafter, in

* Jameson's System of Mineralogy, vol. 3, p. 329.

some part of the Globe, a summit be discovered, the elevation of which exceeds as much that of Chimborazo, as the highest mountain of the Alps surpasses the summit of the Pyrenees.

A distinguished architect, who unites to the knowledge of the monuments of antiquity a strong feeling of the beauties of nature, Mr. Thibault, has undertaken to make the coloured drawing, the engraving of which forms the principal ornament of this work. The sketch I traced on the spot had no other merit than that of exhibiting with accuracy the outlines of Chimborazo, determined by measurements of the angles. The truly natural figure of the whole, and of its various parts, has been scrupulously preserved. In order that the eye may follow the gradation of the plans, and form an idea of the extent of the plain, Mr. Thibault has animated the scene by figures grouped with great taste. To record the services of disinterested friendship is a grateful task.

Epochs of Nature according to the Aztec Mythology.

Pub.d by Longman, Hurst, Rees, Orme & Brown, Aug.st 1814

EPOCHAS OF NATURE,

ACCORDING TO THE

AZTECK MYTHOLOGY.

PLATE XXVI.

THE most prominent feature among the analogies observed in the monuments, the manners, and traditions of the people of Asia and America, is that which the Mexican mythology exhibits in the cosmogonical fiction of the periodical destructions and regenerations of the world. This fiction, which connects the return of the great cycles with the idea of the renewal of matter, deemed indestructible; and which attributes to space what seems to belong only to time*, goes back to the highest antiquity. The sacred books of the Hindoos, especially the *Bhagavata Pourana*, speak of the four ages, and of the *pralayas*, or cataclysms, which at different epochas have

* Herman, Mythologie der Griechen, Th. 2, p. 332.

destroyed the human race*. A tradition of *five ages*, analogous with that of the Mexicans, is found on the elevated plain of Thibet†. If it be true, that this astrological fiction, which is become the basis of a particular system of cosmogony, originated in Indostan, it is probable also, that it passed thence by the way of Iran and Chaldea to the western nations. It cannot but be admitted, that a certain resemblance exists between the Indian tradition of the *Yougas* and the *Kalpas*, the cycles of the ancient inhabitants of Etruria, and that series of générations destroyed, which Hesiod characterizes under the emblem of four metals.

The nations of Culhua, or Mexico, says Gomara‡, who wrote about the middle of the sixteenth century, believe according to their hieroglyphical paintings, that, previous to the sun which now enlightens them, four had already been successively extinguished. These four suns are as many ages, in which our species has been annihilated by inundations, by earthquakes, by a general conflagration, and by the effect of destroying tempests. After the destruction of

* Hamilton and Langles Catalogue of Sanskrit Manuscripts in the Imperial library, p. 13 : Asiatic Researches, vol. 2, p. 171 : Moor's Hindu Pantheon, p. 27 and 101.

† Georgi Alphab. Tibetanum, p. 220.

‡ Gomara, Conquista, fol. cxix.

the fourth sun, the world was plunged in darkness during the space of twenty-five years. Amid this profound obscurity, ten years before the appearance of the fifth sun, mankind was regenerated. The gods, at that period, for the fifth time, created a man and a woman. The day, on which the last sun appeared, bore the sign *tochtli* (rabbit); and the Mexicans reckon eight hundred and fifty years from this epocha to 1552. Their annals go back as far as the fifth sun. They made use of historical paintings *(escritura pintada)* even in the four preceding ages; but these paintings, as they assert, were destroyed, because in each age every thing ought to be renewed. According to Torquemada*, this fable of the revolutions of time, and the regeneration of nature, is of Tolteck origin: it is a national tradition common to that group of people, whom we know under the name of Toltecks, Chichimecks, Acolhuans, Nahuatlacks, Tlascaltecks, and Aztecks; and who, speaking the same language, have been flowing from north to south since the middle of the sixth century of our era.

On examining, at Rome, the Codex Vaticanus, No. 3738, copied in 1566 by a Dominican monk,

* Torquemada, vol. 1. p. 40; vol. 2, p. 83.

Pèdro de los Rios*, I found the Mexican drawing represented in plate 26. This historical document is so much the more curious, as it indicates the duration of each age by signs of which we know the meaning. In P. Rios's Commentary, the order in which the catastrophes took place is entirely confounded; the last, which is the deluge, is there considered as the first. The same error is found in the works of Gomara, Clavigero†, and the greater part of the Spanish authors; who, forgetting that the Mexicans placed their hieroglyphics from right to left, beginning at the bottom of the page, necessarily inverted the four destructions of the world. I shall point out this order, as it is represented in the Mexican paintings of the Vatican library, and described in a very curious history written in the Azteck tongue, fragments of which have been preserved by the Indian Fernando de Alva Ixtlilxochitl‡. The testimony of a native writer, and the copy of a Mexican painting made on the spot a short time after the conquest, merit undoubtedly more confidence than the recital of the Spanish histo-

* See vol. 13, p. 191, and 201.

† Storia Antica di Messico, tom. 2, p. 57.

‡ Gama, §. 62, p. 97: Boturini, Cat. del Museo, §. 8. n. 13.

rians. This diversity, of which we have just stated the reason, relates only to the order of the destructions; for the circumstances, by which each of them was accompanied, are related in the same manner by Gomara, Pedro de los Rios, Ixtlilxochitl, Clavigero, and Gama.

First cycle. Its duration is $13 \times 400 + 6 = 5206$ years. This number is indicated on the right in the lower picture by nineteen rounds, thirteen of which are surmounted by a *feather*. We have already observed, speaking of the calendar, that the hieroglyphic of the square of twenty is a feather; and that, like the nails of the Etruscans and the Romans*, mere rounds indicated among the Mexicans the number of the years. This first age, which corresponds to the age of justice *(Satia Youga)* of the Hindoos, was called *Tlaltonatiuh*, age of the Earth; it is also that of the giants *(Qzocuilliexeque*, or *Tuinametin)*, for the historical traditions of every nation began by combats of giants. The Olmecks or Hulmecks, and the Xicalancks, two nations that preceded the Toltecks, and who boasted of high antiquity, pretended to have found them on arriving in the plains of Tlascala†. According to the Pouranas, Bacchus, or the young Rama, gained also his

* Tit. Liv. Hist. lib. 7, c. 3 (ed. Gesneri, 1735, tom. 1, p. 461).

† Torquemada, vol. 1, p. 37.

first victory over Ravana, king of the giants of the Island of Ceylon.

The year over which the sign *ce acatl* presided was a year of famine, that destroyed the first generation of men. This catastrophe began on the day 4 tiger *(nahui ocelotl)*; and it is probably on account of the hieroglyphic of this day, that, according to other traditions, the giants, who did not perish by famine, were devoured by those tigers *(tequanes)*, the appearance of which was dreaded by the Mexicans at the end of every cycle. The hieroglyphic painting represents a malignant spirit, descending on the earth to root up the grass and the flowers. Three human figures, among which we easily recognise a woman, by her headdress formed of two small tresses resembling horns*, hold in their right hands a sharp-edged instrument, and in their left, fruit, or ears of corn. The spirit, that announces famine, wears one of those rosaries†, which, from time immemorial, have been in use in Thibet, China, Canada, and Mexico; and which have passed from the east to the Christians of the west. Though among all the nations of the Earth the fiction of the giants, of the Titans, and of the Cyclops, appears to indicate the conflict of the elements, or the state of

* Plate XV, No. 3—7, 3.

† Plate XIV, No. 8.

the Globe on its issuing from Chaos, we cannot doubt, but that, in both Americas, the enormous fossil skeletons of animals spread over the surface of the Earth, have had a great influence on mythological history. At St. Helen's Point, to the north of Guayaquil, are enormous remains of unknown cetaceous animals. Peruvian traditions also state, that a colony of giants, who mutually destroyed each other, landed at this very point. Bones of mastodontes, and of fossil elephants belonging to a species that has disappeared from the surface of the Globe, abound in the kingdom of New Granada, and on the ridge of the Mexican Cordilleras*. The plain also, which at two thousand seven hundred metres height extends from Suacha to Santa Fe de Bogota, bears the name of the *Field of the Giants.* It is probable, the Hulmecks boasted, that their ancestors had combated the giants on the fertile plain of Tlascala, because we find on this spot molar teeth of mastodontes and elephants, which in every country the people take for teeth of men of colossal stature.

Second cycle. Its duration is $12 \times 400 + 4 = 4804$ years. This is the age of fire, *Tletonatiuh*, or the red age, *Tzonchichilteck.* The god of fire, Xiuhteuctli, descends on the Earth in the year

* Cuvier, Mém. de l'Instit., Class of Physical and Mathem. Sciences, year 7, p. 14.

governed by the sign *ce tecpatl*, the day *nahui quiahuitl*. As the birds alone were able to escape the general conflagration, tradition states, that all men were transformed into birds, except one man, and one woman, who saved themselves in the recess of a cavern.

Third cycle. The age of wind, or air, *Ehecatonatiuh*. Its duration is $10\times400+10=4010$ years. The catastrophe took place on the day 4 wind *(nahui ehecatl)* of the year *ce tecpatl*. The drawing represents four times the hieroglyphic of the air or the wind, *ehecatl*. Men perished by hurricanes; and some were transformed into apes. These animals did not appear in Mexico before this third age. I am ignorant who is the divinity, that descends on the Earth armed with a sickle. May it not be Quetzalcohuatl, the god of the air? and may not the sickle signify, that the hurricane roots up the trees, as if they had been felled? I doubt, however, whether the yellow stripes indicate, as a Spanish commentator pretends, the form of clouds driven by the tempest. Monkeys are in general less frequent in the warm part of Mexico, than in South America. These animals undertake distant migrations, when, driven by hunger, or the severity of the weather, they find themselves compelled to abandon their primitive abode. I know countries in the mountainous parts of Peru, the inhabitants of which remem-

ber the time, when new colonies of monkeys settled themselves in such and such a valley. Did the tradition of the five ages contain a trait of the history of animals? Could it designate a year, in which hurricanes, and earthquakes caused by volcanoes, induced the monkeys to make incursions into the mountains of Anahuac? In this cycle of tempests, two men only survived the catastrophe, by fleeing to a cavern, as at the end of the preceding age.

Fourth cycle. The age of water, *Atonatiuh*, the duration of which is $10 \times 400 + 8 = 4008$ years. A great inundation, which began the year *ce calli*, the day 4 water *(nahui atl)*, destroyed mankind. This is the last of the great revolutions, which the world has undergone. Men were transformed into fish, except one man and one woman, who saved themselves in the trunk of an *ahahuète*, or cupressus disticha. The drawing represents the goddess of water, called *Matlalcueje*, or *Chalchiuhcueje*, and considered as the companion of Tlaloc, descending towards the Earth. Coxcox, the Noah of the Mexicans, and his wife *Xochiquetzal*, are seated in a trunk of a tree covered with leaves, and floating amidst the waters.

These four ages, which are also designated under the name of *suns*, contain together eighteen thousand and twenty-eight years; that is to say, six thousand years more than the four

Persian ages described in the Zend-Avesta*. I no where find how many years had elapsed from the deluge of Coxcox to the sacrifice of Tlalixco, or till the reform of the Azteck calendar; but, however near we may suppose these two periods, we still find, that the Mexicans attributed to the world a duration of more than twenty thousand years. This duration certainly forms a contrast with the great period of the Hindoos, which consists of four millions three hundred and twenty thousand years; and still more with the cosmogonical fiction of the Thibetans, according to which mankind already compute eighteen revolutions, each of which has several *padu*, expressed by numbers of sixty-two ciphers†. It is nevertheless remarkable, that we find an American people, who, according to the same system of the calendar in use among them on the arrival of Cortez, indicate the days and the years in which the world underwent great catastrophes farther back than twenty ages.

Le Gentil, Bailly, and Dupuis‡, have ingeniously explained the duration of the great cycles

* Anquetil. *Zend-Avesta*, vol. 2, p. 352.

† Thibet. Alphab. p. 472.

‡ Le Gentil, Voy. dans les Indes, vol. 1, p. 235; Bailly, Astron. Ind., p. lxxxxviii and 212: Bailly, Hist. de l'Astron. Am., p. 76: Dupuis, Orig. des Cultes, vol. 3, p. 164.

of Asia. I have never been able to discover any peculiar propriety in the number of 18028 years. It is not a multiple of 13, 19, 52, 60, 72, 360, or 1440, which are the numbers found in the cycles of the Asiatic nations. If the duration of the Mexican *four suns* were longer by three years; and if for the numbers 5206, 4804, 4010, and 4008 years, the numbers 5206, 4807, 4009, and 4009, were substituted, we might suppose, that these cycles originated from a knowledge of the lunar period of nineteen years. But whatever be their real origin, it does not appear less certain, that they are fictions of the astronomical mythology, modified either by an obscure remembrance of some great revolution, which our planet has undergone; or according to the physical and geological hypotheses, to which the aspect of marine petrifactions and of fossil bones has given rise, even among nations the most remote from civilization.

On examining the paintings represented in the 26th plate, we find, in the four destructions, the emblems of four elements, earth, fire, air, and water. These same elements were also indicated by the four hieroglyphics* of the years, rabbit, house, flint, and cane. *Calli*, or house, considered as the symbol of fire, reminds us of the

* See vol. 13, p. 180; and Siguenza, in Gemelli, *Giro del Mondo*, tom. 6, p. 65.

usages of a northern people, who, from the inclemency of the climate, were obliged to warm their huts; and the idea of Vesta (Ἑστία), which, in the most ancient system of the Greek mythology, represents at once the *house*, the *hearth*, and the domestic *fire*. The sign *tecpatl*, flint, was dedicated to the god of the air, *Quetzalcohuatl*, a mysterious personage, who belongs to the heroic times of Mexican history, and of whom we have had occasion to speak several times in the course of this work. According to the Mexican calendar, *tecpatl* is the sign of the night, which, at the beginning of the cycle, accompanies the hieroglyphic of the day, called *ehecatl*, or *wind*. Perhaps the history of an aerolite, which fell from the sky on the summit of the pyramid of Cholula, dedicated to Quetzalcohuatl, led the Mexicans to establish this singular connexion between a flint (tecpatl) and the god of the winds.

We have observed, that the Mexican astrologers have given to the traditions of the destructions and regenerations of the world an historic character, in denoting the days and years of the great catastrophes according to the calendar of which they made use in the 16th century. A very simple calculation might lead them to find the hieroglyphic of the year, which preceded a given period 5206, or 4804 years. It is thus that the Chaldean and Egyptian astrologers, according

to Macrobius and Nonnus, indicated the position even of the planets at the epoch of the creation of the world, and that of the general deluge. On calculating, according to the system of the periodical series, the signs which presided over the years several ages before the sacrifice of Tlalixco, (the year *ome acatl*, or 2 *canes*, corresponding to the year 1091 of the christian æra, I find, that the dates and the signs do not entirely correspond with the duration of each Mexican age. Neither are they marked in the paintings in the Vatican; but I have taken them from a fragment of Mexican history preserved by Alva Ixtlilxochitl, who fixes the duration of the four ages not to 18028, but only to 1417 years. We must not be surprised at this in astrological calculations; for the first number includes almost as many indictions as the last contains years. Thus in the mystic chronology of the Hindoos, the substitution of days for *divine years*.* reduces the four ages of 4,320,000 years to 12000.

* Bailly, Astr. Ind., p. ci.

System of the Vatican MS. No. 3738.	*System of the Tradition preserved by Ixtlilxochitl.*
Duration of the *first* age....$100\times52+6=5206$ years..	$13\times52=676$ years
Epoch of the first destruction.....	..... 1 acatl
Duration of the catastrophe.....	..... 13 years
Duration of the *second* age..$92\times52+20=4804$ years..	$7\times52=364$ years
Epoch of the second destruction.....	..... 1 tecpatl
Duration of the *third* age....$77\times52+6=4010$ years..	$6\times52=312$ years
Epoch of the third destruction.....	..... 1 tecpatl
Duration of the *fourth* age...$77\times52+4=4008$ years..	$1\times52=52$ years
Epoch of the fourth destruction.....	..... 1 calli
346 cycles of 52 years $+36=18028$ years	109 indictions - of 13 years $=1417$ years

On examining, according to the system of the Mexican calendar, the numbers which are contained in this table, we see, that two ages, separated by an interval of years, the number of which is a multiple of 52, cannot have different

signs. It is impossible, that the fourth destruction should have taken place in the year *calli*, if the third happened in the year *tecpatl*. I cannot guess what has caused this error: it may however have been only in appearance, and in the historical monuments, which have been transmitted to us, there may have been no mention of the small number of years employed by nature for each regeneration. The Hindoos distinguish the interval between two cataclysms, and the duration of each; in the same manner, in the fragment of Ixtlilxochitl, we read, that the first catastrophe is seven hundred and seventy-six years distant from the second; but that the famine, which destroyed the giants, lasted thirteen years, or the quarter of a cycle. In the two chronological systems which we have just mentioned, the epocha of the creation of the world, or rather the beginning of the great periods, is the year presided by *tochtli*; which sign was to the Mexicans, what Aries was to the Persians. In every nation astronomy indicates the position of the Sun, at the moment when the stars begin their course; and we have already shown it to be probable, when speaking * of the relations observed between the fiction of the ages and the signification of the hieroglyphic *ollin*, that *tochtli* corresponds to one of the solstitial points.

* Vol. xiii, p. 352, p. 402.

According to the system of the Mexicans, the four great revolutions of nature are caused by the four elements; the first catastrophe is the annihilation of the productive faculty of the earth: the three others are owing to the action of fire, air, and water. After each destruction mankind was regenerated, and all of the ancient race that did not perish were transformed into birds, into monkeys, or into fish. These transformations remind us also of the traditions of the East: but in the system of the Hindoos, the ages, or *yougas*, are all terminated by inundations; and in that of the Egyptians * the cataclysms alternate with conflagrations, and men save themselves sometimes on the mountains, and at other times in the valleys. We should wander from our subject, were we here to explain the small local revolutions, which took place at various periods in the mountainous parts of Greece †; and discuss the well-known passage of the second book of Herodotus, which has so much exercised the sagacity of commentators. It appears almost certain, that this passage does not relate to *apoca-*

* Timæus, cap. 5, (Platon. *Oper.*, 1578, *ed. Serran.*, t. 3, p. 22): *De Legib.*, lib. iii, (*Op. omn.*, t. ii, p. 676—679): Origenes *contra Celsum*, *lib.* i, c. 20; *lib.* iv, c. 20 (ed. Delarue, p. 338 & 514).

† Arist. *Meteor.*, lib. i, c. 14 (*Op. omn. ed. Duval*, 1639, p. 770).

tastases, but to four (seeming) changes in the places of the setting and rising of the Sun*, caused by the precession of the equinoxes †.

We may be surprised at finding five ages or *suns* among the Mexican nations, while the Hindoos and Greeks admit only four; it may not be amiss, therefore, to observe, that the cosmogony of the Mexicans accords with that of the people of Thibet, which considers also the present as the fifth age. If we attentively examine the fine passage of Hesiod ‡, in which he explains the oriental system of the renovation of nature, we see, that this poet counts in reality five generations in four ages. He divides the age of brass into two parts, which comprehend the third and fourth generations §; and we may be astonished, that so clear a passage should have sometimes been misinterpreted ‖. We are ignorant of the number of ages recorded in the books of the Sybil ¶; but we think, that the

* Herod. lib. ii, c. 142 (Larcher, 1802, t. 2, p. 482).

† Dupuis, Mémoire explicatif du Zodiaque, p. 37 et 39.

‡ Hesiod, *Opera & Dies*, v. 174 (*Op. omn., ed. Cleric.*, 1701, p. 224).

§ Hesiod, v. 143 & 155.

‖ Fabricii Bibl. Græca, Hamb., 1790, vol. 1, p. 246.

¶ Virg. Bucol. IV, v. 4, (ed. Heyne, Lond. 1793, v. 1, p. 74 & 81).

analogies we have just indicated are not accidental, and that it is not uninteresting to the philosophical history of man, to see the same fictions spread from Etruria and Latium to Thibet, and thence to the ridge of the Cordilleras of Mexico.

Beside the tradition of the four suns, and the customs which we have already described *, the *Cod. Vatican. anon.*, No. 3738, contains several curious figures. Of these we shall mention, fol. 4, the *chichiuhalquehuitl, tree of milk, or celestial tree,* that distils milk from the extremity of its branches, and around which are seated infants, who have expired a few days after their birth; fol. 5, a jaw tooth, perhaps of a mastodonte, weighing three pounds, given in 1564, by P. Rios, to the Viceroy Don Lewis de Velasco; fol. 8, the volcano *Cotcitepetl, speaking mountain,* celebrated for the penance of Quetzalcohuatl, and designated by a mouth and a tongue, which are the hieroglyphics of speech; fol. 10, the pyramid of Cholula; and fol. 67, the seven chiefs of the seven Mexican tribes, clothed with rabbits' skins, and issuing from the seven caverns of Chicomoztoc. From sheet 68 to sheet 93, this manuscript contains copies of hieroglyphical paintings composed after the conquest; we see natives hung upon trees, holding the cross in their hand; soldiers

* Plate XIV, vol. xiii, p. 201.

of Cortez on horseback setting fire to a village; monks baptizing wretched Indians at the moment they are about to be thrown into the water to be drowned. From these circumstances we recognise the arrival of the Europeans in the new world.

HIEROGLYPHIC PAINTING,

TAKEN FROM THE

Borgian Manuscript of Veletri,

AND

SIGNS OF THE DAYS OF THE MEXICAN ALMANAC.

PLATE XXVII.

THE twenty signs of the days have been selected from the first pages of the manuscript of Veletri, each of which contains five rows of thirteen hieroglyphics, and in all $5 \times 13 \times 4 = 260$ days, or a year of twenty *half lunations* of the ritual almanac. These two hundred and sixty signs are so disposed, that four double pages are filled with the reduction of the periods of thirteen days, or half-decades of the civil almanac, of which fifty-two form a ritual year. It is worthy of remark also, that, in order to facilitate the reading of these pictures, the author has repeated,

Signs of the Days in the Mexican Almanac.

Pub.d by Longman, Hurst, Rees, Orme & Brown, Aug.t 1814.

at the beginning of each row, the last sign of the preceding row. Mr. Zoega has observed the same peculiarity in the Egyptian hieroglyphics; and it is from observations of this kind, that he has judged whether hieroglyphics were read from right to left, or from left to right. We find in the *Codex Borgianus* the sign of motion, the print of a foot, sometimes added to the sign of a day: I am ignorant of the cause of this singular assemblage.

Of the four rows of the hieroglyphics of the day (Plate 27, No. 1), the first, which according to the system of the Mexican writing is the lowest row, exhibits, from right to left, *cipactli*, *eheeatl*, *calli*, *cuetzpalin*, and *cohuatl*; the second, *miquiztli*, *mazatl*, *tochtli*, *atl*, and *itzcuintli*; the third, *ozomatli*, *malinalli*, *acatl*, *ocelotl*, *quauhtli*, and *cozcaquauhtli*; the fourth, or the uppermost row, *ollin*, *tecpatl*, *quiahuitl*, and *xochitl*. We have already given * the significations of these hieroglyphics. On comparing the figures of the 27th plate with those published by Valadés, Gemelli, Clavigero, and Cardinal Lorenzana, we see how inaccurate are the notions, which have been hitherto given respecting the signs of the Mexican calendar.

The painting, which represents a figure appearing to have four hands (Plate 27, No. 2), is taken

* Vol. xiii, p. 296, 313, 337—54.

from the *Codex Borgianus*, fol. 58. I have copied a whole page, in order to give a clear idea of the distribution of this curious manuscript. As we find nothing among the Mexican hieroglyphics that announces the worship of the *lingam* (φάλλος), so we observe none of those figures with several heads and hands, which characterize, as we may say, the mystic paintings of the Hindoos. The man placed on the right in the upper compartment is a priest clothed with the skin of a human victim recently sacrificed. The painter has marked the drops of blood, which cover this skin; that of the hands hangs on the arm of the sacrificer, who hence appears to have four hands. This costume, and the horrible and disgusting ceremonies which it recalls to mind, are described by Torquemada *. A chapel, known under the name of *Yopico*, was built over the cavern that contained the human skins. We have already seen, that the fourth Mexican month, *tlacaxipehualiztli*, which corresponds to our month of March, had received its denomination from these sanguinary festivals. In the *Codex Borgianus*, which is a ritual calendar, we find in reality the figure of a priest, covered with the skin of a man, under the sign of the day which indicates the vernal equinox †. The head

* Mon. Ind. lib. 10, cap. 12 (vol. ii, p. 271).

† Cod. Borg. fol. 25 (Fabr. MSS. n. 105, 275, and 299). See also vol. xiii, p. 290.

of the sacrificer is covered with one of those pointed caps, which are worn in China, and on the north-west coast of America. Opposite this figure is seated the god of fire, *Xiuhteuctli Tletl*, at whose feet is a sacred vase. In the first year of the Mexican cycle, *Tletl* is the *sign of night* for the day on which the vernal equinox falls.

The lower compartment (Plate 27, No. 2) represents the god *Tonacateuctli*, holding in his right hand a knife, some leaves of agave, and a bag of incense. We are entirely ignorant what is meant by the two children holding each other by the hand, and of whom a commentator has observed, that "they seem to speak the same language." The serpent placed below the temple might lead us to suspect, that they are the twin children of *Cihuacohuatl*, the celebrated *serpent woman*, the Eve of the Aztecks. But the small figures of the *Codex Borgianus*, fol. 61, are females, as is evidently indicated by the disposition of their hair; while those represented in the manuscript of the Vatican * are males.

* See Plate 23 of this Atlas.

AN AZTECK HATCHET.

PLATE XXVIII.

THIS hatchet, made of a compact feldspar passing into the real jade of M. de Saussure, is loaded with hieroglyphics. I am indebted for it to the kindness of Don Andres Manuel del Rio, professor of mineralogy in the school of mines at Mexico, and author of an excellent treatise on Oryctognosy. I have deposited it in the king of Prussia's cabinet at Berlin. Jade, compact feldspar *(dichter feldspath)*, Lydian stone, and certain varieties of basalt, are all of them mineral substances, which, in both continents, as well as in the South Sea islands, furnished the savage and half civilized nations with the first materials for their hatchets, and various offensive weapons. As the Greeks and Romans employed brass long after the introduction of iron, so the Mexicans and Peruvians made use of stone hatchets, when copper and brass were very common among them. Notwithstanding our long and frequent

excursions in the Cordilleras of both Americas, we were never able to discover a rock of jade; and this rock being so scarce, the more are we surprised at the immense quantity of jade hatchets, which are found on digging in plains formerly inhabited, from the Ohio to the mountains of Chili.

AN AZTECK IDOL

OF

Basaltic Porphyry,

FOUND UNDER THE PAVEMENT OF THE

GREAT SQUARE AT MEXICO.

PLATE XXIX.

THE whole of the remains of the Mexican sculpture and painting, which we have hitherto examined, prove, excepting a single group of figures represented on the eleventh plate, a total ignorance of the proportions of the human body, a great rudeness and incorrectness in the drawing, but a very minute research into the truth of the detail. We may be surprised at finding the imitative arts in this state of barbarism among a people, whose political existence had displayed for ages a certain degree of civilization; and among whom idolatry, astrological superstitions, and the desire of keeping up the remembrance

of events, multiplied the number of idols, as well as that of sculptured stones and historical paintings. We must not however forget, that several nations, which have acted a part on the stage of the world, particularly the people of central and eastern Asia, with whom the inhabitants of Mexico appear to be connected by very near ties, exhibit this same contrast of social perfection and of infancy in the arts. We might be tempted to apply to the inhabitants of Tartary, and those of the mountains of Mexico, what a great historian of antiquity* said of the Arcadians: "The cold and gloomy climate of Arcadia gives the inhabitants a harsh and austere aspect; for it is natural that men, in their manners, figure, complexion, and institutions, should resemble their climate." But in proportion as we examine the state of our species in different regions, and accustom ourselves to compare the physiognomy of countries with that of the nations inhabiting them, we mistrust that specious theory, which refers to the climate alone what is owing to the concurrence of a great number of moral and physical circumstances.

Among the Mexicans, the ferocity of manners sanctioned by a sanguinary worship, the tyranny exercised by the princes and the priests, the chi-

* Polyb., *Hist.* lib. IV, § 80 (*ed. Casaub.* 1609, p. 290, D).

merical dreams of astrology, and the frequent use of symbolic writing, appear to have singularly contributed to perpetuate the barbarism of the arts, and the taste for incorrect and hideous forms. Those idols, before which the blood of human victims daily flowed; those first divinities, the offspring of fear; united in their attributes all that is strange in nature. The lineaments of the human figure disappeared under the load of their garments, helmets with heads of carnivorous animals, and serpents twisted round the body. A religious respect for the signs conferred on every idol its individual figure, from which it was not allowable to deviate; and it was by these means, that the incorrectness of the figures was perpetuated, and the people accustomed themselves to the assemblage of those monstrous resemblances, which were however disposed according to systematic ideas. Astrology, and the complicated manner of graphically marking the divisions of time, were the principal causes of these aberrations of the imagination. Each event seemed to be at the same time under the influence of the hieroglyphics which presided over the day, the half-decade or the year; and hence arose the idea of coupling signs, and creating those merely fantastic beings, which we find so often repeated in the astrological paintings that have reached us. The genius of the American languages, which, like the Sanscrit, the Greek,

and tongues of Germanic origin, leads us to recall to mind a great number of ideas in a single word, has no doubt facilitated those uncouth creations of mythology and the imitative arts.

The people, faithful to their primitive habits, whatever be the degree of their intellectual culture, pursue, for ages, the path they have once traced. An intelligent writer* has remarked, speaking of the solemn simplicity of the Egyptian hieroglyphics, "that these hieroglyphics offered rather an absence, than a viciousness of imitation." It is on the contrary this viciousness of imitation, this taste for the minutest details, this repetition of the most ordinary forms, that characterize the historical paintings of the Mexicans. We have already observed†, that we ought not to confound representations, in which almost every thing is individualized, with mere hieroglyphics, adapted to represent abstract ideas. If from these the Greeks borrowed the ideal style‡, the Mexican people found, in the frequent employment of historical and astrological paintings, and in their respect for forms generally uncouth, and always incorrect, insuperable obstacles to the progress of the imitative arts. In

* Quatremère de Quincy, Sur l'Idéal dans l'Arte du Dessin, Archives littéraires, 1805, No. 21, p. 300 and 310.

† See vol. xiii, p. 349.

‡ Quatremère de Quincy, page 303—307.

Greece religion became the chief support of the fine arts, to which it gave existence; and the imagination of the Greeks spread a soothing charm over the most gloomy objects. Among a people groaning beneath the yoke of a sanguinary worship, death every-where obtrudes itself under the most hideous emblems; it is engraven on every stone, inscribed on every page of their books, and their religious monuments seem to be reared with no other view, than to produce terror and dismay.

I have thought proper to make these observations, before I fix the attention of the reader on the monstrous idol represented in the 29th plate. This rock, sculptured on every side, is more than three metres high, and two broad. It was discovered under the pavement of the Plaza Mayor at Mexico, within the enclosure of the great temple, in the month of August, 1790; consequently a few months before* the discovery of the enormous stone, which displays the holidays and the hieroglyphics of the days of the Azteck calendar. The workmen, who were employed in making excavations in order to build a subterraneous aqueduct, found it in a horizontal position, thirty-seven metres to the west of the Viceroy's palace, and five metres north of the Azequia of St. Joseph. As it is scarcely probable,

* See vol. xiii, page 397.

that the soldiers of Cortez, when they buried the idols to conceal them from the view of the natives, transported masses of considerable weight very far from the *sacellum* where they were originally placed, it is important to mark with precision the spots, in which all the remains of Mexican sculpture were found. These nations will become particularly interesting, if a government, anxious to throw light on the remote civilization of the Americans, should make researches by digging round the cathedral in the chief square of the ancient Tenochtitlan, and the market-place Tlatelalco*, to which, in the last days of the siege, the Mexicans withdrew with their household gods *(Tepitotan)*, their sacred books *(Teoamoxtli)*, and whatever they had of most value.

When we cast our eyes on the idol represented in the 29th plate, as it is seen in front (Fig. 1), behind (Fig. 3), on one side (Fig. 2), from above (Fig. 4), and from beneath (Fig. 5), we might be tempted at first to think, that this monument is a *teotetl (divine stone)*, a kind of *betylum*†, ornamented with sculpture, a rock on which hieroglyphic signs are engraved. But when we examine more closely this shapeless mass, we distinguish on the upper part the unit-

* Gama, *Descripcion de las Piedras*, etc., p. 2.

† Zoega, *de Obel.* p. 208.

ed heads of two monsters; and we find in each face (Fig. 1 and 3) two eyes, and a large mouth with four teeth. These hideous figures are perhaps only masks; for among the Mexicans they were accustomed to mask their idols on the indisposition of a king, or any other public calamity. The arms and feet are hidden under a drapery surrounded by enormous serpents, which the Mexicans denoted by the name of *cohuatlicuye, garment of serpents.* The whole of these accessories, especially the fringes in form of feathers, are sculptured with the greatest care. Mr. Gama, in a separate treatise, has rendered it very probable, that this idol represents (Fig. 3) the god of war, *Huitzilopochtli,* or *Tlacahuepancuexcotzin;* and (Fig. 1) his wife, called *Teoyamiqui** (from *miqui* to die, and *teoyao, divine war*), because she conducted the souls of warriors, who died in the defence of the gods, to the *house of the Sun,* the Elysium of the Mexicans†, where she transformed them into humming-birds. The death's heads and mutilated hands, four of which surround the bosom of the goddess, recall to mind the horrible sacrifices *(teoquauhquetzoliztli)* celebrated in the fifteenth period of thirteen days after the summer solstice, in honor of the god of war, and his female companion, *Teoya-*

* Boturini, *Idea de una nueva Historia general,* p. 27 and 66.

† Torquemada, Lib. XIII, c. 48 (tom. 2, p. 569).

miqui. The mutilated hands alternate with the figure of certain vases, in which incense was burnt. These vases were called *top-xicalli, bags in the form of calebashes*, (from *toptli*, a purse woven with the thread of the pita, and *xicalli*, a calebash).

This idol being sculptured on every side, even beneath (Fig. 5), where we see represented *Mictlanteuhtli, the lord of the place of the dead*, we cannot doubt, but that it was supported in the air by means of two columns, on which rested the parts A and B in figures 1 and 3. According to this uncouth arrangement, the head of the idol was probably elevated five or six metres above the pavement of the temple, so that the priests *(teopixqui)* dragged the unhappy victims to the altar, making them pass beneath the figure *Mictlanteuchtli*.

The Viceroy, count Reyillagigedo, transported this monument to the university of Mexico, which he considered as the most proper place for the preservation of the curious remains of American antiquity*. The professors of this University, of the order of St. Dominic, were unwilling to expose this idol to the sight of the Mexican youth; and buried it anew in one of the passages of the college two feet deep. I should not have had the means of examining this

* Officio del 5 Sept. 1790.

idol, had not the bishop of Monterey, Don Feliciano Marin, who passed through Mexico in his way to his diocese, prevailed on the rector of the university, at my solicitation, to unbury it. I found Mr. Gama's drawing, which I have copied in the 29th plate, very exact. The stone, of which this monument is formed, is a bluish gray basaltic wakke, cleft, and filled with vitreous feldspar.

The same researches in digging to which we are indebted for the sculptures represented in plates 21, 23, and 29, led to the discovery, in the month of January, 1791, of a tomb two metres long, and one broad, filled with very fine sand, and containing a well preserved skeleton of a carnivorous quadruped. The tomb was square, and formed of slabs of porous amygdaloid, called *tezontle*. The animal appeared to be a *coyote*, or Mexican wolf. Clay vases and small well cast brass bells were placed near the bones. This tomb was no doubt that of some sacred animal; for the writers of the sixteenth century inform us, that the Mexicans erected small chapels to the wolf, *chantico*; to the tiger, *clatocaocelotl*; to the eagle, *quetzalhuexoloquauhtli*; and to the snake. The *cou*, or *sacellum* of the *chantico*, was called *tetlanman*; and what is more, the *priests of the sacred wolf* formed a particular congregation, the convent

of which bore the name of *Tetlacmancalmecac**.

It is easy to conceive how the divisions of the zodiac, and the names of the signs that presided over the days, the half-lunations, and the years, may have led men to the worship of animals. The nomade tribes reckon by lunations; they distinguish the moon of the rabbits, that of the tigers, that of the goats, &c., according to the different periods of the year in which the wild or tame animals afford them enjoyments, or inspire them with terror. When by degrees the measures of time become measures of space†, and nations form the dodecatemorion of the *zodiac of the full moons*, the names of the wild and tame animals are transferred to the constellations themselves. It is thus that the Tartar zodiac, which contains only real ζώδια, may be considered as the *zodiac of the hunting and shepherd tribes*. The tiger, unknown in Africa, gives it a character exclusively Asiatic. This animal is no longer found in the Chaldean, Egyptian, or Greek zodiac, in which the tiger, the hare, the horse, and the dog, are replaced by the lion of Africa, Thrace, and western Asia,

* Nieremberg, *Hist. Nat.* Lib. viii, c. 22, p. 144: Torquemada, lib. II, c. 58; lib. VIII, c. 13 (tom. 1, p. 194; tom. 2, p. 291).

† See vol. xiii, p. 370.

the balance, the twins, and, what is very remarkable, by the symbols of agriculture. The Egyptian zodiac is the *zodiac of an agricultural nation*. In proportion as nations are civilized, and the mass of their ideas enlarged, the denominations of the zodiacal constellations have lost their primitive uniformity, and the number of *celestial animals* has diminished. This number, however, has remained considerable enough, to exercise an evident influence on religious systems. Astrological reveries have led men, to attach a great importance to the signs, which preside over the different divisions of time. At Mexico, each sign of the days had its altar. In the great *teocalli* (θεῦ καλιὰ), near the column which supported the image of the planet Venus *(Ilhuicatitlan)*, were small chapels for the asterisms *macuilcalli* (5 house), *ome tochtli* (2 rabbit), *chicome atl* (7 water), and *nahui ocelotl* (4 tiger); as the greater part of the hieroglyphics of the days was composed of animals, the worship of these was intimately connected with the system of the Calendar.

CATARACT

OF THE

RIO VINAGRE,

NEAR THE VOLCANO OF PURACE.

PLATE XXX.

THE city of Popayan, capital of a province of New Grenada, is situate in the beautiful valley of Rio Cauca, at the foot of the great volcanoes of Puracé and Sotara. Its height above the level of the South Sea being only eighteen hundred metres, it enjoys, under a latitude of 2° 26′ 17″, a delicious climate, much less sultry than that of Carthago and Ibagué, and infinitely more temperate than that of Quito and Santa-Fe de Bogota. On ascending from Popayan toward the top of the volcano of Puracé, one of the great elevations of the Andes, we find, at two thousand, six hundred and fifty metres height, a small plain *(Llano del Corazon)*, inhabited by

Indians, and cultivated with the greatest care. This delightful plain is bounded by two ravines extremely deep, on the brink of which precipices the houses of the village of Puracé are built. Waters spring out profusely from the porphyritic rock; every garden is enclosed by a hedge of euphorbiums (*lechero*) with slender leaves, and of the most delicate green. Nothing is more agreeable than the contrast of this beautiful verdure with the chain of black and arid mountains, which surround the volcano, and which are cleft and torn asunder by earthquakes.

The small village of Puracé, which we visited in the month of November, 1801, is celebrated in the country for the beautiful cataracts of the river Pusambio, the waters of which are acid, and called by the Spaniards Rio Vinagre. This small river is warm toward its source, and probably owes its origin to the daily melting of the snows, and the sulphur that burns in the interior of the volcano. It forms, near the plain of Corazan, three cataracts, the two uppermost of which are very considerable. The second of these falls (*chorreras*), I have sketched in the 30th plate, as it is seen from the garden of an Indian, near the house of the missionary of Puracé, who is a franciscan monk. The water, which makes its way through a cavern, precipitates itself down more than a hundred and

twenty metres. The cascade is extremely picturesque, and attracts the attention of travellers; but the inhabitants of Popayan regret, that the river, instead of mingling itself with the Rio Cauca, is not ingulfed in some abyss: for the latter river is destitute of fish for four leagues, on account of the mixture of its waters with those of the Rio Vinagre, which are loaded both with oxid of iron, and sulphuric and muriatic acids.

On the foreground of the sketch is a group of *pourretia pyramidata*, a plant resembling the *pitcairnia*, known on the Cordilleras by the name of *achúpallas*. The stem of this plant is filled with a farinaceous pith, which serves as food to the great black bear of the Andes, and in times of scarcity even to men.

POSTMAN

OF THE

PROVINCE OF JAEN DE BRACAMOROS.

PLATE XXXI.

In order to render the communications between the coasts of the Pacific Ocean, and the province of Jaen de Bracamoros, situate on the east of the Andes, more easy, the postman of Peru descends swimming, for two days, first the river of Guancabamba, or Chamaya, and afterward that of Amazons, from Pomahuaca and Ingatambo to Tomependa. He wraps the few letters, of which he is the bearer every month, sometimes in a handkerchief, sometimes in a kind of drawers called guayuco, which he winds as a turban around his head. This turban contains also the great knife *(machette)*, with which every Indian is armed, rather to cut his way through the forests, than as a weapon of defence.

The Chamaya river is not navigable, on account of a great number of small cascades; I found* its fall five hundred and forty-two metres from the ford of Pucara to its mouth, in the river of Amazons, below the village of Choras, in the small distance of eighteen leagues. The postman is called in the country the swimming postman *(el coreo que nada)*. The 31st plate represents him as we saw him in the village of Chamaya, at the moment he entered the water. In order to fatigue himself less in descending the river, he supports himself on a log of bombax or ochroma *(palo de valza)*, trees of very light wood. When a ledge of rocks intersects the bed of the river, he lands above the cascade, crosses the forest, and reenters the water when he sees no farther danger. He has no need of taking provision with him, for he finds a welcome in a great number of huts, surrounded with plantain trees, and situate along the banks of the river between las Huertas de Pucara, Cavico, Sonanga, and Tomependa. Sometimes, to render the journey more agreeable, he is accompanied by another Indian. The rivers, which mingle their waters with those of the Marannon above Pongo de Mayasi, are happily not infested with crocodiles; the savage hordes, therefore, almost all travel like the Pe-

* See my Recueil d'Observ. Astron. vol 1, p 314.

ruvian postman. It is very seldom, that letters are either lost or wetted during the passage from Ingatambo to the residence of the governor of Jaen. After the postman has rested a few days at Tomependa, he returns either by the *Paramo de Pareton*, or by the dangerous road which leads to the villages of San Felipe and Sagiqué, the forests of which abound in bark of the finest quality.

STATES SOCI

HIEROGLYPHICAL HISTORY

OF THE

AZTECKS,

FROM

THE DELUGE TO THE FOUNDATION

OF THE

City of Mexico.

PLATE XXXII.

This historic painting has already been published, at the end of the seventeenth century, in the narrative of the voyage of Gemelli Carreri. Although the *Giro del Mondo* of this author is a work well known, we have thought it proper to republish this piece, on the authenticity of which some ill-founded doubts have been raised, that deserve to be examined with the most scrupulous attention. It is only by the reunion of a great number of documents, that we can hope

to throw some light on the history, the manners, and the civilization of those nations of America, that were ignorant of the admirable art of analyzing sounds, and painting them by separate or combined characters. A comparison of the documents with each other not only renders their explanation easy, but affords also certain data respecting the confidence, which the Azteck traditions recorded in the writings of the first Spanish missionaries deserve. I think, that such powerful motives will be a sufficient justification of the choice we have made of a few articles collected from works already printed, and adding them to the many inedited documents published in this collection.

The hieroglyphic sketch given in the 32d plate has been hitherto so much the more neglected, as it is found in a book, which, in consequence of the most extraordinary scepticism, has been considered as a mass of falsehood and imposture. I durst not speak of Gemelli Carreri, says the illustrious author of the History of America, "because it seems to be now a received opinion, that this traveller was never out of Italy; and that his famous *Giro del Mundo* is an account of a fictitious voyage." It is true, that Robertson does not seem to adopt the opinion he advances; for he judiciously adds, that this imputation of fraud does not appear to him founded

on any good evidence*. I shall not decide the question, whether Gemelli visited China or Persia; but, having travelled in the interior of Mexico a great part of the road, which the Italian traveller so minutely describes, I can affirm it to be no less certain, that Gemelli was in Mexico, at Acapulco, and the small villages of Mazatlan and of San Augustin de las Cuevas, than that Pallas has been in the Crimea, and Mr. Salt in Abyssinia. Gemelli's descriptions have that local tint, which is the principal charm of the narratives of travels, written by the most unlettered men; and which can be given only by those who have been ocular witnesses of what they describe. A respectable ecclesiastic, Abbé Clavigero †, who traversed Mexico almost half a century before me, had already undertaken the defence of the author *del Giro del Mondo;* and has very justly observed, that, had Gemelli never left Italy, it was impossible that he could have spoken with so much accuracy of persons, who lived in his time, of the convents of the city of Mexico, and of the churches of several villages, the names of which were unknown in Europe. The same tone of veracity, and we must insist on this point, does not appear in the notions, which the author professes to have borrowed

* Robertson's History of America, 1803, vol. iii, p. 418.

† *Storia Antica di Messico*, vol. i, p. 24.

from the recitals of his friends. The work of Gemelli Carreri, like that of a celebrated traveller, who, in our own times, has been treated with so much severity, seems to contain an inextricable mixture of errors and well observed facts.

The sketch of the migration of the Aztecks formerly made part of the distinguished collection of Dr. Siguenza, who inherited the hieroglyphic paintings of a noble Indian, Juan de Alba Ixtlilxochitl. This collection, as Abbé Clavigero affirms, was preserved, till 1759, in the college of the Jesuits at Mexico. We are ignorant of its fate after the destruction of the order. I turned over the leaves of the Azteck paintings preserved in the library of the University, without being able to find the original of the drawing represented in the 32d plate; but several old copies exist at Mexico, which certainly were not made from the engraving of Gemelli Carreri. If we compare all that is symbolical and chronological in the painting of the migrations with the hieroglyphics contained in the manuscripts of Rome and Veletri, and in the collections of Mendoza and Gama, no one certainly would give credit to the hypothesis, that the drawing of Gemelli is the fiction of some Spanish monk, who has attempted to prove, by apocryphal documents, that the traditions of the Hebrews are found among the indigenous nations of America. All that we know of the

history, the worship, the astrology, and the cosmogonical fables of the Mexicans, forms a system, the parts of which are closely connected with each other. The paintings, the bas-reliefs, the ornaments of the idols and of the *divine stones* (*teotetl* of the Aztecks, Θεοῦ πέτρα of the Greeks), all bear the same character, and the same physiognomy. The deluge that begins the history of the Aztecks, and from which Coxcox saved himself in a bark, is indicated with the same circumstances in the drawing, which represents the destructions and regenerations of the world *. The four indictions (*tlalpilli*), which relate † to these catastrophes, or to the subdivisions of the *great year*, are sculptured on a stone, discovered in 1790 in the foundations of the *teocalli* of Mexico. Robertson, who is always severe in the examination of facts, has admitted, in the last edition of his work, the authenticity of the paintings of the museum of Siguenza. "We cannot doubt," says this great historian, "that we are indebted for these paintings to the natives of Mexico, and the correctness of the drawing seems to prove only, that the copy has been made or retouched by an European artist." This last observation does not appear to be entirely confirmed by the great number of hiero-

* Plate 26.

† See page 25; and vol. xiii, p. 372.

glyphic paintings preserved in the archives of the viceroyalty at Mexico, were, since the conquest, and especially since the year 1540, an evident improvement in the art of drawing is perceived. I saw, in the Boturini collection, clothes of cotton, and rolls of agave paper, on which were represented, by very correct outlines, bishops on the backs of mules, Spanish lancemen on horseback, oxen yoked to a plough, vessels arriving at Vera Cruz, and a number of other objects unknown to the Mexicans before the arrival of Cortez. These paintings were made not by Europeans, but by Indians and Mestizoes. On looking over the hieroglyphic manuscripts of different periods, we observe the progress of the arts toward perfection. The stunted figures become more proportionate. The limbs separate themselves from the trunk; the eye in profile is no longer seen as if it were in the front; horses, which in the Azteck paintings resembled Mexican stags, assume gradually their real form. The figures are no longer grouped as if in procession; their relations to each other are multiplied; we see them in action; and the symbolic painting, which sketches or recals events, rather than expresses them, is insensibly transformed into an animated painting, which employs only a few phonetic hieroglyphics *, to indicate the names of

* See vol. xiii, page 159.

persons and sites. I am inclined to think, that the picture, which Siguenza communicated to Gemelli is a copy made after the conquest, either by a native, or the descendant of a Spaniard and a Mexican. The painter has no doubt avoided following the incorrect forms of the original; he has imitated with scrupulous exactness the hieroglyphics of the names, and the cycles; but he has altered the proportions of the human figures, the drapery of which he has formed in a manner analogous to that we have found in other Mexican paintings*.

The following are the principal events indicated in the 32d plate, according to Siguenza's explanation, to which we shall add a few incidents taken from the historical annals of the Mexicans.

The history begins by the Deluge of Coxcox, or the fourth destruction of the world, which, according to the Azteck cosmogony, terminates the fourth of the great cycles, *atonatiuh, the age of water*†. This cataclysm took place, according to the two received chronological systems, one thousand four hundred and seventeen, or eighteen thousand and twenty-eight years after the beginning of the age of earth, *tlaltonatiuh*. The enormous difference of these numbers ought

* Plate 14, No. 5 and 7.

† See above, page 23.

less to astonish us, when we recollect the hypotheses, which in our days have been advanced by Bailly, Sir William Jones, and Bentley*, on the duration of the five Yougas of the Hindoos. Of the different nations that inhabit Mexico, paintings representing the deluge of Coxcox are found among the Aztecks, the Miztecks, the Zapotecks, the Tlascaltecks, and the Mechoacanese. The Noah, Xisuthrus, or Menou of these nations, is called Coxcox, Teo-Cipactli, or Tezpi. He saved himself conjointly with his wife, Xochiquetzal, in a bark, or, according to other traditions, on a raft of *ahuahuete* (cupressus disticha). The painting represents Coxcox in the midst of the water, lying in a bark. The mountain, the summit of which, crowned by a tree, rises above the waters, is the Peak of Colhuacan, the Ararat of the Mexicans. The horn, which is represented on the left, is the phonetic hieroglyphic of Colhuacan. At the foot of the mountain appear the heads of Coxcox and his wife. The latter of these is known by the two tresses in the form of horns, which, as we have often observed, denote the female sex. The men born after the deluge were dumb: a dove, from the top of a tree, distributes among them tongues, represented under the form of small commas†.

* Asiat. Researches, Vol. 8, page 195.

† See the lawsuit in Plate 12.

We must not confound this dove with the bird which brings Coxcox tidings, that the waters were dried up. The people of Mechoacan preserved a tradition, according to which Coxcox, whom they called Tezpi, embarked in a spacious *acalli* with his wife, his children, several animals, and grain, the preservation of which was of importance to mankind. When the great spirit, Tezcatlipoca, ordered the waters to withdraw, Tezpi sent out from his bark a vulture, the *zopilote* (vultur aura). This bird, which feeds on dead flesh, did not return on account of the great number of carcases, with which the earth, recently dried up, was strewed. Tezpi sent out other birds, one of which, the humming bird alone, returned, holding in its beak a branch covered with leaves; Tezpi, seeing that fresh verdure began to clothe the soil, quitted his bark near the mountain of Colhuacan.

These traditions, we here repeat, remind us of others of high and venerable antiquity. The sight of marine substances, found even on the loftiest summits, might give men, who have had no communication, the idea of great inundations, which for a certain time extinguished organic life on the earth: but ought we not to acknowledge the traces of a common origin, wherever cosmogonical ideas, and the first traditions of nations, offer striking analogies even in the minutest circumstances? does not the humming-

bird of Tezpi remind us of Noah's dove, that of Deucalion, and the birds, which, according to Berosus, Xisuthrus sent out from his ark, to see whether the waters had run off, and whether he might erect altars to the protecting divinities of Chaldea?

The tongues, which the dove distributed to the nations of America (No. 1), being infinitely varied, these nations disperse, and fifteen heads of families only, who spoke the same tongue, and from whom the Toltecks, the Aztecks, and the Acolhuans descended, unite, and arrive at Aztlan (the country of the *garces* or flamingoes). The bird placed on the hieroglyphic of water, *atl*, denotes Aztlan. The pyramidical monument with steps is a *teocalli*. I am astonished at finding a palm tree near this teocalli: this plant certainly does not indicate a northern region; nevertheless it is almost certain, that we must look for the first country of the Mexican nations, Aztlan, Huehuetlapallan, and Amaquemecan, at least North of the 42d degree of latitude. Perhaps the Mexican painter, inhabiting the torrid zone, placed a palm-tree near the temple of Aztlan only because he was ignorant, that this tree was a stranger to the northern countries. The fifteen chiefs have the simple hieroglyphics of their names above their heads.

From the teocalli erected in Aztlan to Chapoltepec the figures placed along the road indicate

the places where the Aztecks made some abode, and the towns they built. Tocolco and Oztotlan (No. 3 and 4), *humiliation* and *the place of grottoes;* Mizquiahuala (No. 5), denoted by a mimosa bearing fruit placed near a teocalli; Teotzapotlan (No. 11), *place of divine fruits;* Ilhuicatepec (No. 12); Papantla (No. 13), *herb with broad leaves;* Tzompango (No. 14), *place of human bones;* Apazco (No. 15), *vessel of clay;* Atlicalaguian (a little above the preceding hieroglyphic), *a crevice in which a rivulet disappears;* Quauhtitlan (No. 16), *a thicket inhabited by an eagle;* Atzcapozalco (No. 17), *an ant's nest;* Chalco (No. 18), *place of precious stones;* Pantitlan (No. 19), *place of spinning;* Tolpetlac (No. 20), *mats of rushes;* Quauhtepec (No. 9), *the eagle's mountain,* from *quauhtli,* an eagle, and *tepec* (in Turkish, *tepe*) a mountain; Tetepanco (No. 8), *a wall composed of several small stones;* Chicomoztoc (No. 7), *the seven grottoes;* Huitzquilocan (No. 6), *place of thistles;* Xaltepozauhcan (No. 22), *place from which sand is extracted;* Cozcaquauhtli (No. 32), name of a vulture; Techcatitlan (No. 31), *place of obsidian mirrors;* Azcaxochitl (No. 21), *flower of the ant;* Tepetlapan (No. 23), place where is found the *tepelate,* a clayey breccia, which contains amphibole, vitreous feldspar, and pumice stone; Apan (No. 32), *place of water;* Teozomaco (No. 24), *place of the divine monkey;* Chopoltepec (No. 25),

mountain of the locusts, a place shadowed by ancient cypresses, and celebrated for the magnificent view from the top of the hill*; Coxcox, king of Colhuacan (No. 30), denoted by the same phonetic hieroglyphics as are found in the square, which represents the deluge of Coxcox, and the mountain of Colhuacan; Mixiuhcan (No. 29), *place of childbirth;* the city of Temazcatitlan (No. 26); the city of Tenochtitlan (No. 34), designated by dykes traversing a marshy soil, and by the nopal (cactus) on which reposed the eagle, which had been pointed out by the oracle, to mark the place where the Aztecks were to build a city, and finish their migrations; the founders of Tenochtitlan (No. 35); those of Tlatelalco (No. 27); the city of Tlatelalco (No. 28), which is at present only a suburb of Mexico.

We shall not enter into an historical detail of the events to which the simple and compound hieroglyphics of the painting of Siguenza relate. These events are recorded in Torquemada, and in the ancient history of Mexico published by the Abbé Clavigero. Besides, this picture is less curious as a monument of history, than interesting, from the method which the artist has followed for the connexion of facts. We shall content ourselves with noticing here, that the bundles of

* See my Essay on New Spain, vol. i, page 179, 2.

rushes tied with ribands (No. 2), do not represent, as Gemelli asserts, periods of a hundred and four years, or Huehuetiliztli, but cycles, or ligatures, Xiuhmolpilli, of fifty-two years*. The whole picture exhibits only eight of these ligatures, or four hundred and sixteen years. Remembering, that the city of Tenochtitlan was founded in the 27th year of a *Xiuhmolpilli*, we find, that, according to the chronology of the picture (Plate 32), the emigration of the Mexican nations from Aztlan took place five cycles before the year 1298, or in the year 1038 of the Christian era. Gama places this emigration, from other indications, in 1064. The circles accompanying the hieroglyphic of a ligature denote the number of times, that the years have been *connected* since the famous sacrifice of Tlalixco. Now, in the painting under our examination, we find the hieroglyphic of the cycle followed by four nails, or units, near the hieroglyphic of the city of Colhuacan (No. 30). It was then in the year 208 of their era, that the Aztecks were relieved from the yoke of the kings of Colhuacan; and this date is conformable to the annals of Chimalpain. The circles placed on the side of the hieroglyphics of the cities (Nos. 14 and 17), denote the number of the years, that the Azteck nation dwelt in each place, before it continued

* See vol. xiii. page 236.

its migrations. I think the ligature (No. 2) indicates the cycle that terminated at Tlalixco: for, according to Chimalpain, the festival of the second cycle was celebrated at Cohuatepetl; and that of the third cycle, at Apuzco; while the festivals of the fourth and fifth cycles took place at Colhuacan, and at Tenochtitlan.

The singular idea of recording on a single sheet of small size what in other Mexican paintings often fills pieces of cloth, or skins, ten or twelve metres in length, has rendered this historical abridgment extremely incomplete. It treats of the migration of the Aztecks only, and not of that of the Toltecks, who preceded the Aztecks more than five centuries in the country of Anahuac; and who differed from them by that love of the arts, and that religious and pacific character, which distinguished the Etrustans from the first inhabitants of Rome. The heroic times of the Azteck history extend to the eleventh century of the Christian era. Till then, the divinities mingled in the actions of men; and it was at this epocha that Quetzalcohuatl, the Bouddha of the Mexicans, a white and bearded man, priest and legislator, devoted to the most rigorous penances, founder of monasteries and congregations like those of Thibet and western Asia, appeared on the coasts of Panuco. Every thing anterior to the emigration from Aztlan is mixed with childish fables. Among barbarous nations, with-

out means of preserving the remembrance of facts, the knowledge of their history is confined to a very short period. There is a point of their existence, beyond which they no longer measure the interval of events. In time, as well as space, distant objects approach each other, and are confounded together; and the same cataclysm, which the Hindoos, the Chinese, and all the nations of the Semitic race place thousands of years before the improvement of their social state, the Americans, a people perhaps not less ancient, but whose awakening has been of a later date, supposed to be only two cycles before their emigration from Aztlan.

BRIDGE OF ROPES

NEAR

PENIPE.

PLATE XXXIII.

THE small river of Chambo, which flows from the lake of Coley, separates the pleasing village of Guanando from that of Penipé. It waters a ravine, the bottom of which is two thousand four hundred metres above the level of the ocean; and which is celebrated for the cultivation of cochineal *, which the natives have followed from time immemorial. In crossing this country to reach Riobamba, on the western declivity of the volcano of Tunguragua we stopped to examine the country disrupted by the memorable earthquake of the 7th of February, 1797; which, in the space of a few minutes, destroyed thirty or

* See my Political Essay on New Spain, vol. ii, p. 465.

Bridge of Ropes, near Penipe

forty thousand Indians. We passed the river of Chambo by the bridge of Penipé, in the month of June, 1802. This is one of those bridges of ropes, which the Spaniards call *puente de maroma*, or *de hamaca*; and the Peruvian Indians, in the qquichua language, or that of the Incas, *cimppachaca*, from *cimppa*, or *cimpasca*, ropes, tresses, and *chaca*, a bridge. The ropes, three or four inches in diameter, are made of the fibrous part of the roots of the *agave Americana*. On each bank they are fastened to a clumsy frame-work, composed of several trunks of the *schinus molle*. As their weight makes them bend toward the middle of the river, and as it would be imprudent to stretch them with too much force, they are obliged, when the banks are low, to form steps or ladders at both extremities of the bridge of *hamac*. That of Penipé is a hundred and twenty feet long, and seven or eight broad; but there are bridges, which have more considerable dimensions. The great ropes of *pitte* are covered transversely with small cylindrical pieces of bamboo. These structures, of which the people of South America made use long before the arrival of the Europeans, remind us of the chain bridges at Boutan, and in the interior of Africa. Mr. Turner *, in his interesting account

* Account of an Embassy to the Court of the Teshoo Lama in Thibet, 1800, page 55.

of his journey to Thibet, has given us the plan of the bridge of Tchintchieu, near the fortress of Chuka, lat. 27° 14′, which is one hundred and forty feet in length, and which may be passed on horseback. This chain bridge in Boutan is composed of five chains covered with pieces of bamboo.

All travellers have spoken of the extreme danger of passing over these rope bridges, which look like ribands suspended above a crevice or an impetuous torrent. This danger is not very great, when a single person passes over the bridge as quickly as possible, with his body leaning forward: but the oscillations of the ropes become very strong, when the traveller is conducted by an Indian who walks quicker than himself; or when, frightened by the view of the water which he sees through the interstices of the bamboos, he has the imprudence to stop in the midst of the bridge, and lay hold of the ropes that serve as a rail. A bridge of *hamac* lasts generally in good condition only twenty or five and twenty years. It is necessary, however, to renew some of the ropes every eight or ten years. But in these countries the police is so negligent, that we often see bridges, in which most of the pieces of bamboo are broken. On these old bridges travellers must proceed with great circumspection, to avoid holes, through which the whole body might slip. A few years before my abode at Penipé, the ha-

mac bridge of the Rio Chambo broke down all at once. This was owing to a very dry wind having succeeded long rains, in consequence of which all the ropes gave way at the same time. By this accident four Indians were drowned in the river, which is very deep and extremely rapid.

The ancient Peruvians constructed also bridges of wood, supported by piers of stone; though they most commonly satisfied themselves with bridges of ropes. These are extremely useful in a mountainous country, where the depth of the crevices, and the impetuosity of the torrents, prevent the construction of piers. The oscillatory motion might be diminished by lateral ropes fastened to the middle of the bridge, and stretched diagonally toward the bank. It is by a bridge of ropes, of extraordinary length, and on which travellers may pass with loaded mules, that a permanent communication has been established between Quito and Lima, after uselessly expending upwards of forty thousand pounds sterling, to build a stone bridge, near Santa, over a torrent, which rushes from the Cordillera of the Andes.

COFFER

OR

PEROTÉ.

PLATE XXXIV.

THIS mountain of basaltic porphyry is less remarkable for its height, than the singular form of a small rock placed on the summit of the eastern side. This rock, resembling a square tower, bears, among the natives of the Azteck race, the name of *Nauhcampatepetl*, from *nauhcampa*, four parts, and *tepetl*, a mountain; and among the Spaniards that of Coffer of Perote. The summit of this mountain commands a very extensive and varied prospect over the plain of Puebla, and the eastern slope of the Cordilleras of Mexico covered with thick forests of liquidambar, arborescent ferns, and sensitive plants. From it we discern the harbour of Vera Cruz, the castle of St. John of Ulua, and the seacoasts. The Coffer does not enter into the limit of the perpetual snows. I found by a

barometrical measurement the highest of its summits to be 4088m. (2097 toises) above the level of the sea, which exceeds by 400 metres that of the peak of Teneriffe. I sketched the mountain from the vicinity of the great town of Perote, in the arid plain covered with pumice stone, which we crossed in ascending from Vera Cruz to Mexico. The summit of the coffer is a naked rock, surrounded by a forest of pines. On climbing this summit, I remarked, that the oaks disappeared at the height of 3165 metres (1619 toises); but the pines, which in their leaves resemble the *pinus strobus*, are seen at the height of 3942 metres (2202 toises). Under each zone, the temperature and barometric pressure prescribe to the vegetable world the limits, which it cannot pass.

MOUNTAIN

OF

ILINISSA.

PLATE XXXV.

AMONG the colossal heights, which are seen from around the city of Quito, that of Ilinissa is one of the most majestic and picturesque. The summit of this mountain is divided into two pyramidal points, which, it is probable, were the wrecks of a volcano, that has fallen in. Their absolute elevation is 2717 toises. The mountain of Ilinissa is in the western chain of the Andes, in the parallel of the volcano of Cotopaxi; and joins the summit of Ruminnahui by the Alto de Tiopullo, which forms a transverse link, whence the waters run off toward both the Pacific and the Atlantic oceans*. The pyramids of Ilinissa are visible at an enormous distance in the plains, which form a part of the province of las Esme-

* See above, page 3.

raldas. Their height, both above the plain of Quito and the seacoast, was trigonometrically measured by Bouguer; and the French academicians determined, by the difference of height obtained in these two measurements, the absolute height of the city of Quito, and the approximative value of the barometric coefficient. Those natural philosophers, who interest themselves in the history of the progress of the sciences, will rank the name of Ilinissa with that of the Puy-de-dome, where Perrier, following the advice of Pascal, attempted first to measure the height of mountains by the aid of a barometer.

FRAGMENTS

OF

AZTECK HIEROGLYPHICS,

DEPOSITED IN THE

Royal Library of Berlin.

PLATE XXXVI.

THESE fragments are taken from some ancient manuscripts, that I purchased during my abode in Mexico. There can be no doubt, that they are lists formed by the collectors of tributes, *tlacalaquiltecani*; but it is not easy to indicate the objects designated in these lists.

No. 1 makes part of a codex Mexicanus of agave paper, which is three or four metres in length; and appears to be a register of maize, gold ingots, and other productions, which composed the tribute, *tequitl*. I am absolutely ignorant what the painter meant to indicate by the great number of small squares symmetrically

disposed. In the second row, reckoning from right to left, we find four hieroglyphics, which follow each other in a periodical series. The days marked here and there denote the times at which the tribute was to be paid.

No. 2, 3, 4. What explanation can we give of these women's heads placed near the sign of 20? The cocks and turkeys, delineated in No. 3, might lead us to think, that these birds were equally known to the Mexicans before the conquest; if it were sufficiently proved, that the paintings, from which these figures are taken, date farther back than the 15th century. I have shown in another work*, that the cock of the Indies, known in the islands of the South Sea, was introduced into America by the Europeans.

The *tlamama*, or porters, No. 5, appear to hold stalks of maize, or sugar-canes, in their hands. I shall not undertake to determine the species of animals beneath the *tlamama*, and somewhat resembling the *tochtli*, or Mexican rabbit.

No. 7 points out the kind of punishment, which was inflicted on the unhappy natives, when they did not pay the tribute at the time prescribed. Three Indians, whose hands are tied behind their backs, appear to be condemned to

* Political Essay, vol. 2, p. 452.

the gallows. The lists of tributes were placed, in each parish, before the eyes of the *tequitqui*, or tributaries; and the collectors were accustomed to add, at the bottom of the list, the nature of the punishment, to be inflicted on those who were not obedient to the law.

HIEROGLYPHIC PAINTINGS

IN THE

BORGIAN MUSEUM,

AT VELETRI.

PLATE XXXVII.

We have already * spoken of the arrangement of the Codex Mexicanus, preserved in the Borgian Museum. As we cannot hope to see the whole of this Mexican ritual published, I have brought together on the same plate a great number of figures, remarkable for their forms, and their relations to the manners of a people both superstitious and ferocious.

No. 1. (Cod. Borg. fol. 11, MSS Fabreg. No. 18). The mother of mankind, the serpent woman, *Cihuacohuatl*, whom the first missionaries denote by the name of *Senora de nuestra carne*, or *Tonacacihua* (from *tonacayo*, our flesh,

* Plate 27, page 84.

and *cihua*, woman). Compare the Codex Vaticanus, pl. 18, N. 2.

No. 2. The same serpent woman, the Eve of the Mexicans. The rabbit, *tochtli*, placed on the right, indicates the first year of the world, each cycle beginning by the sign of the rabbit. P. Fabrega pretends, in his Commentary, that the mother of mankind is represented in a state of humiliation, eating *cuitlatl* (κοπρος).

No. 3. (Cod. Borg. fol. 58, MSS No. 275). The Lord of the place of the dead, *Mictlanteuhtli**, devouring a child.

No. 4. (Cod. Borg. fol. 24, MSS No. 98). Noah in his old age, with a long beard, *Huehuetonacateocipactli;* from *huehue*, old, *tonacayo*, our flesh, *teotl*, god, and *cipactli*. See the explanations given, page 23, and vol. xiii, p. 338. This same figure is found again in the Codex Borg. folio 60.

No. 5. (Cod. Borg. fol. 56, MSS No. 265). The same divinities as we find in the hideous group, plate 29; namely, the god of war, *Huitzilopochtli*, with a club in his hand, and the goddess *Teoyamiqui*. They are pictured sitting on a human skull. I have copied only the goddess, holding in her left hand a kind of sceptre, which is terminated by a hand. This sceptre is called *Maquahuitl*, from *maitl*, a hand,

* Plate 29, fig. 5, page 47.

and *quahuitl*, wood. It is no doubt very remarkable, that we find in the Azteck paintings a hand of justice, like that which is represented on the seal of Hugh Capet*, and which reminds us of the *manus erecta* of the Roman cohorts †.

No. 6. *Teocipactli*, the same figure as is represented No. 4. I have chosen it on account of the extraordinary shape of the forehead. The forehead of the natives of Mexico and Peru are in general singularly flattened, and the painters endeavour to exaggerate this character in representing heroical personages.

No. 7. (Cod. Borg. fol. 33, MSS No. 150). Five little imps, which remind us of the celebrated picture of the Temptation of St. Anthony. On the same page is represented a temple of *Quetzalcohuatl*, the triangular roof of which is surrounded by a serpent. The idol, placed in a niche, receives the offering of a human heart. By the side of the temple, we see the goddess of

* Montfaucon, Monuments of the French Monarchy, vol. i, page 36; Menestrier, nouvelle Méthode raisonné de Blason (Lyon, 1750) page 52; Dictionaire de Trevoux, tom. iii, page 127: Gilbert Devarennes (Paris, 1635) page 184.

† Augustinus, Antiquitat. Romanor. Hispaniarumque in Nummis Veterum Dialogi (Antverp 1654) p. 18; Lipsius de Militia Romana, page 41.

Hell, *Mictlanteuhcihua*, stretching out her arms toward the body of the victim.

No. 8. (Cod. Borg. fol. 47, MSS No. 210). The astrological sign *nahui Ollin tonatiuh*, the Sun in its four motions; which, by prints of feet, or *xocpalli*, seems to remind us of the positions of the Sun at the zenith, in the equator, and at the solstices *. At the side we find the dates of the days presided over by the asterisms *ozomatli*, ape; *calli*, house; and *quiahuitl*, rain. If these dates were 8 *rain*, 5 *house*, and 3 *ape*, they would answer, according to the disposition of the periodical series, to the days in which the Sun is at one of the tropics, at the equator, and in the zenith of the city of Mexico; but the ciphers added to the hieroglyphics differ several units from those which we have just mentioned. The sign *ollin* is placed at the extremity of a cylindrical insect, which appears to be a millipede or scolopendra. I am ignorant of the signification of the astrological symbol, which resembles a cross.

No. 9. (Cod. Borg. fol. 59). A man and a woman folding children in their arms, and raising one hand toward Heaven.

No. 10. (Cod. Borg. fol. 23, MSS No. 94). The drinking devil, *Tlacatecolutl motlatlaperiani*,

* See vol. xiii, page 352 and 399.

holding a heart in one hand, and drinking the blood of another heart, while a third is suspended from his neck. This hideous figure confirms what we have already advanced * respecting the ferocity of the Mexican people.

* Page 44.

MIGRATION

OF

THE AZTECK NATIONS,

FROM A

HIEROGLYPHIC PAINTING

DEPOSITED IN THE ROYAL LIBRARY

AT

Berlin.

PLATE XXXVIII.

THIS ill preserved fragment appears to have made part of a great picture, which formerly belonged to the collection of the Chevalier Boturini. The figures are very clumsily painted on *amatl*, or paper of *maguey* (agave americana). We behold in it a marshy country on the left, indicated by the hieroglyphic of water, *atl*; prints of feet, *xocpal-machiotl*, representing the migrations of a warlike people; arrows shot from one bank of a river toward the other; combats between

two nations, one of which is armed with bucklers, and the other naked and without means of defence. It is probable, that these combats designate some of those, which took place in the sixth century of our era, in the wars of the Aztecks against the Otomites and other hunting nations, that dwelt on the north and the west of the valley of Mexico. The figures placed near the hieroglyphic *calli*, house, perhaps indicate the foundation of certain towns. The bucklers of the Aztecks are ornamented with arms peculiar to each tribe, and have those appendages of leather, or cotton, well fitted to deaden the stroke of a dart, which are found on some Etruscan vases *. The figures are disposed in symmetrical order. We might be surprised at seeing them use their left hand, rather than their right; but we have had occasion already to remark, that the hands are often confounded in the Mexican paintings, as well as in several Egyptian bas-reliefs.

* See plate 14, No. 2.

VASES OF GRANITE

FOUND ON THE

Coast of Honduras.

PLATE XXXIX.

THESE granite vases, which are four times as large as they appear in the 39th plate, are preserved in England in the collections of Lord Hillsborough and Mr. Brander. They were found on the Moschetto shore, in a country inhabited at present by a barbarous nation, entirely ignorant of sculpture. They are described by Mr. Thomas Pownal, in the interesting Memoirs published by the Antiquarian Society of London *. I have introduced these drawings, to point out the analogy that exists between the ornaments with which they are decorated, and those on the ruins of Mitla. This analogy

* Archæologia, or Miscellaneous Tracts relating to Antiquity, published by the Soc. of Antiquaries of London, vol. v, plate 26, page 318.

Vases of Granite found on the Coast of Honduras.

Pub.d by Longman, Hurst, Rees, Orme, & Brown, Aug.t 1824.

entirely destroys the suspicion, that they were made after the conquest by the Indians, who attempted to imitate the form of some Spanish vase. We know, that the Toltecks, in their passage through the province of Oaxaca, penetrated even beyond the lake of Nicaragua. We may hence conjecture, that these vases, ornamented with the heads of birds and tortoises, are the work of some tribe of the Tolteck race. If we reflect on the form of the vessels in domestic use among the Spaniards of the 16th century, it is impossible to admit, that the soldiers of Cortez carried to Mexico vases similar to those, which Mr. Pownal has described.

AN AZTECK IDOL,

IN BASALT,

FOUND IN THE

Valley of Mexico.

PLATE XL.

THIS small idol in porous basalt, which I have deposited in the cabinet of the king of Prussia, reminds us of the statue of the priestess, placed at the head of this part of our work *. We find the same head-dress, which resembles the *calantica* of the heads of Isis; the pearls of California, which surround the forehead; and the bag tied with a knot, and terminated by two appendages that reach to the middle of the body. The circular hole in the breast appears to have served

* Vol. xiii, plate 1 and 2, page 43.

as the receptacle of the incense (*copalli* or *xochitlenamactli*), which was burnt before the idols. I am ignorant what the figure holds in its left hand; the forms are highly incorrect, and every thing about it indicates the infancy of the art.

AIR VOLCANO

OF

Turbaco.

PLATE XLI.

In order to avoid the excessive heats, and the diseases which take place during the summer at Carthagena, and on the arid coasts of Baru and Tierra Bomba, those Europeans, who are not seasoned to the climate, remove inland to the village of Turbaco. This small Indian village stands on a hill, at the entrance of a majestic forest, which extends toward the south and the east as far as the canal of Mahates and the river Magdalena. The houses are mostly built of bamboos, and covered with palm leaves. Here and there limpid springs rise out of a calcareous rock, which contains numerous fragments of

petrified coral, and are shaded by the splendid foliage of the anacardium caracoli, a tree of colossal size, to which the natives attribute the property of attracting from great distances the vapours floating in the atmosphere. As the soil of Turbaco is more than three hundred metres above the level of the ocean, a delightful coolness prevails, especially during the night. We resided in this charming spot in the month of April, 1801, when, after a toilsome passage from the island of Cuba to Carthagena, we were preparing ourselves for a long journey to Santa Fe de Bogota, and the elevated plain of Quito.

The Indians of Turbaco, who accompanied us in our herbalizations, often spoke to us of a marshy country, situate amidst a forest of palm trees, and called by the Creoles the little Volcanoes, *los Volcancitos*. They related, that, according to a tradition still existing among them, this spot had formerly been in flames; but that a very pious man, vicar of the village, had succeeded by his frequent aspersions of holy water in extinguishing the subterraneous fire. They added, that, since this time, the fiery volcano had become a water volcano, *volcan de agua*. From our long residence in the Spanish colonies, we were familiar with the strange and marvellous stories, which the natives eagerly recite, to fix the

attention of travellers on the phenomena of nature; though we knew, that these stories were in general less indebted for their currency to the superstition of the Indians, than to that of the Whites, the mestizoes, and the African slaves; and that the reveries of a few individuals, who reason on the progressive changes of the surface of the Globe, gradually assume the character of historical traditions. Without giving any credit to the existence of an extent of country in a former state of ignition, we were conducted by the Indians to the Volcancitos de Turbaco; and this excursion made us acquainted with phenomena, much more important than any we could have expected.

The Volcancitos are situate six thousand metres to the east of the village of Turbaco, in a thick forest, abounding with balsam of Tolu trees, the gustavia with flowers resembling those of the nymphea, and the *cavanillesia mocundo*, the membranous and transparent fruits of which resemble lanterns suspended at the extremity of the branches. The ground rises gradually forty or fifty metres above the village of Turbaco; but as it is every-where covered with vegetation, it is not possible to distinguish the nature of the rocks that repose on the shelly calcareous soil. The 41st Plate represents the southern part of the plain, in which are found the *Volcancitos.*

This engraving was executed from a sketch made by one of our friends, Mr. Lewis de Rieux. This young artist, with whom we ascended the river Magdalena, was then attending his father, who, under the administration of Mr. d' Urquijo, was charged with the inspection of the bark trees of Santa-Fé.

In the centre of a vast plain, bordered by bromelia karatas, are eighteen or twenty small cones, in height not above seven or eight metres. These cones are formed of a blackish gray clay, and have an opening at their summits filled with water. On approaching these small craters, a hollow but very distinct sound is heard at intervals, fifteen or eighteen seconds previous to the disengagement of a great quantity of air. The force with which this air rises above the surface of the water may lead us to suppose, that it undergoes a great pressure in the bowels of the Earth. I generally reckoned five explosions in two minutes; and this phenomenon is often attended with a muddy ejection. The Indians assured us, that the forms of the cones undergo no visible change in a great number of years; but the ascending force of the gas, and the frequency of the explosions, appear to vary according to the seasons. I found by analyses made by means both of nitrous gas and of phosphorus, that the disengaged air scarcely

contains a thousandth part of oxygen. It is azotic gas, much more pure than that which is generally prepared in our laboratories. The physical cause of this phenomenon is discussed in the historical narrative of our travels into the interior of the New Continent.

VOLCANO

OF

CAYAMBE.

PLATE XLII.

Of the various summits of the Cordilleras, the heights of which have been determined with any precision, Cayambe is the loftiest except Chimborazo. Bouguer and Condamine found its elevation to be 5901 metres (3208 toises); and the angles which I took in the Exido of Quito, to observe the progress of the terrestrial refraction at different hours of the day, confirm this determination. The French Academicians * named this colossal mountain *Cayambur*, instead of *Cayambe-Urcu*, which is its real name; the word *urcu* denoting, in the qquichua language, mountain, as *tepetl* in Mexican, and *gua* in Muysca. This error is repeated in every work, that gives a table of the principal heights of the Globe.

* La Condamine, *Voyage à l'Equateur*, p. 163.

I have sketched Cayambe as it appears above the Exido of Quito, which is at the distance of thirty-four thousand toises. Its form is that of a truncated cone; and reminds us of the outline of the *Nevado de Tolima*, represented in the fifth plate. Among the mountains covered with eternal snow, that surround the city of Quito, Cayambe, which is the most beautiful as well as the most majestic, never ceases to excite admiration at sunset, when the volcano of Guagua-Pichincha, situate to the west, or toward the Pacific ocean, throws its shadow over the vast plain, which forms the foreground of the landscape. This plain, covered with grasses, is destitute of trees. A few bushes of barnadesia, duranta, and barberry alone are scattered around; with those beautiful calceolariæ, which belong almost exclusively to the southern hemisphere, and the western part of America.

Some distinguished northern artists have lately published a drawing of the cascade of the river Kyro, near the village of Yervenkyle, in Lapland, through which, according to the observations of Maupertuis, and Mr. Swanberg, the polar circle passes. The summit of Cayambe is traversed by the equator. We may consider this colossal mountain as one of those eternal monuments, by which nature has marked the great divisions of the terrestrial Globe.

LIBRARY OF THE BRANCH OFFICE

Volcano of Jorullo

VOLCANO

OF

JORULLO.

PLATE XLIII.

THE plate of which I am now about to give an explanation recalls to mind one of the most singular catastrophes in the physical history of our planet. Notwithstanding the frequent communications between the two continents, this catastrophe has remained almost unknown to the geologists of Europe. I have already given a description of it in my political Essay on the Kingdom of New Spain *.

The volcano of Jorullo is situate, according to my observations, in latitude 19° 9′, longitude 103° 51′ 48″, in the intendency of Valladolid, to the west of the city of Mexico, and thirty-six leagues distant from the ocean. It is 513 metres (263 toises)

* Tom. 1, p. 248. See also my Collection of Astr. Obs., t. 1, p. 327, & tom. 2, p. 521.

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above the surrounding plains. Its height is consequently triple that of the Monte Nuovo of Puzzuola, which rose up out of the earth in 1538. My drawing represents the volcano of Jorullo (Xorullo or Juruyo), surrounded by several thousand small basaltic cones, such as it appeared as we descended from Arco, and the hills of Aguasarco, toward the Indian huts of the Playas. On the foreground is represented a part of the savannah in which this enormous excrescence was formed on the night of the 29th of September, 1759. It is the ancient level of the disrupted soil, now called by the name of Malpays. The fractured strata, seen in the foreground, separate the plain that has remained unbroken from the Malpays, which, bristling with small cones from six to nine feet in height, extends over four square miles. In the place where the thermal waters of Cuitimba and San Pedro descend toward the savannahs of Playas, the elevation of the broken strata is only twelve metres; but the ground raised up has the form of a bladder, and its convexity progressively increases toward the centre, so that at the foot of the great volcano the soil is elevated 160 metres above the Indian huts we inhabited in the Playas de Jorullo. The profile, published in the Geographical and Physical Atlas, which accompanies the historical narrative, will render this statement of the dif-

ferences in the level of the ground more easy to be understood.

The cones are so many funnels, which exhale a thick vapour, and communicate an insupportable heat to the surrounding air. They are called in this country, which is excessively unhealthy, by the name of the little ovens, *hornitas*. They contain nodules of basalt embedded in a mass of indurated clay. The slope of the great volcano, which is constantly burning, is covered with ashes. We reached the inside of the crater by climbing the hill of scorified and branching lavas, represented in the engraving toward the left, and which rises to a considerable height. We shall here observe as a remarkable fact *, that all the volcanoes of Mexico are ranged in a line from east to west; and which forms at the same time *a parallel of great elevations*. In reflecting on this fact, and comparing it with our observations on the *bochenuove* of Vesuvius, we are tempted to suppose, that the subterraneous fire has pierced through an enormous crevice, which exists in the bowels of the Earth between the latitudes of 18° 59′ and 19° 12′, and stretches from the Pacific to the Atlantic Ocean.

* Political Essay, tom. 1, p. 47.

CALENDAR

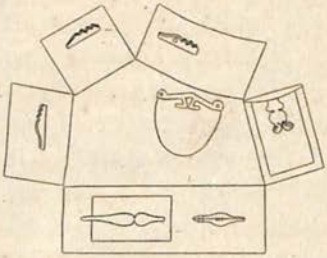
OF THE

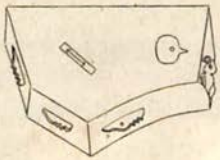
MUYSCA INDIANS,

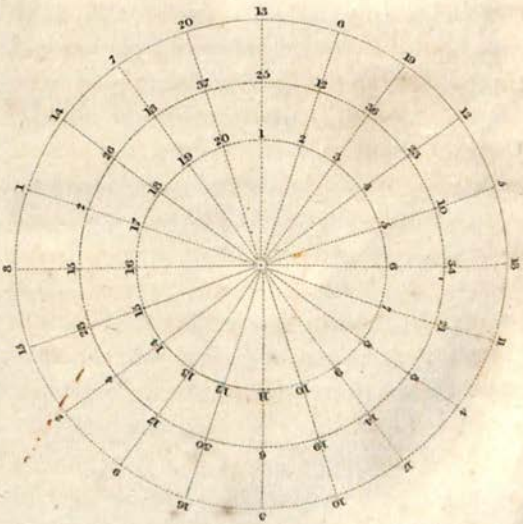
THE ANCIENT INHABITANTS OF THE PLAIN OF BOGOTA.

PLATE XLIV.

A STONE, covered with hieroglyphic signs of the lunar calendar, and representing the order in which the intercalations, that bring back the origin of the year to the same season, is made, is a monument so much the more remarkable, as it is the work of a people, whose name is almost entirely unknown in Europe, and who have been hitherto confounded with the wandering tribes of the savages of South America. For the discovery of this monument we are indebted to Don Jose Domingo Duquesne of Madrid, canon of the metropolitan church of Santa Fé de Bogota. This ecclesiastic, a native of the kingdom of New Grenada, and descended from a French family settled in Spain, was long the vicar of an Indian







Lunar Calendar of the Muyscas

Pub.d by Longman, Hurst, Rees, Orme & Brown, Aug.t 1.st 1814

village situate on the plain of the ancient Cundinamurca. His office having enabled him to gain the confidence of the natives, who are descendants of the Muyscas, he has endeavoured to collect all that tradition has preserved during three centuries concerning the state of those regions before the arrival of the Spaniards in the New Continent. He succeeded in procuring one of those sculptured stones, by which the Muysca priests regulated the division of time; he acquired the knowledge of the simple hieroglyphics, which denote both numbers and the lunar days; and he has written a statement of the knowledge he acquired, the fruit of long and laborious researches, in a memoir that bears the title of *Disertacion sobre el Kalendario de los Muyscas, Indios naturales del nuevo Reyno de Grenada.* This manuscript was communicated to me at Santa Fé, in 1801, by the celebrated botanist Don Jose Celestino Mutis. Mr. Duquesne gave me permission to sketch the pentagonal stone, of which he has endeavoured to give an explanation; and it is this drawing, which has been engraven on the 41th plate.

I shall here offer a few desultory observations on the calendar of the Muysca Indians, from the materials contained in the Spanish memoir which I have just cited; and shall subjoin certain considerations relative to the analogy between this calendar and the cycles of the Asiatic nations.

When the *Adalantado* Gonçalo Ximenez de Quesada, surnamed the conqueror, arrived, in 1537, from the banks of the Magdelena, at the lofty savannahs of Bogota, he was struck with the contrast, which he remarked between the civilization of the nations inhabiting the mountains, and the savage state of the hordes scattered along the sultry regions of Tolu, Mahates, and S^a^. Martha. On the elevated plain, where, in latitude 4° and 5°, the centigrade thermometer keeps constantly between 17 and 20 degrees during the day, and between 8 and 10 degrees at night, Quesada found the Muyscas, the Guanes, the Muzoes, and the Calimas, settled in communities, employed in agriculture, and cloth-ed in cotton garments; while the tribes that wandered through the neighbouring plains, nearly on a level with the surface of the Ocean, appeared brutalized, destitute of clothes, without industry, and without arts*. The Spaniards were surprised at seeing themselves transported into a country, where, on a soil of little fertility, the fields every-where yielded plentiful harvests of maize, chenopodium quinoa, and *turmas*, or

* *Historia general de las Conquistas del Nuevo Reyno de Grenada, por el Doctor D. Lucas Fernandez Piedrahita*, p. 15. (The author, who died Bishop of Panama, compiled this history from the manuscripts of Quesada, the Conqueror; Juan de Castellanos, vicar of Tunja; and the franciscan monks, Fray Antonio Medrano and Fr. Pedro Agueda).

potatoes. I shall not here examine whether, notwithstanding the introduction of corn and horned cattle, the plain of Bogota is less populous in our days than before the conquest; but shall only observe, that, when I visited the mines of gem salt at Zipaquira, I was shown the most certain indications of former culture in lands now left desolate, to the north of the Indian village of Sbua.

Among the different nations of Cundinamurca, that which the Spaniards designated by the name of Muysca, or Mozca, appears to have been the most numerous. The fabulous traditions of this nation go back almost to the distant epocha, when the Moon did not yet accompany the Earth; and when the plain of Bogota formed a lake of considerable extent, from the inundations of the river Funzha. In the description of the cataract of Tequendama*, we have spoken of that marvellous personage, known in the American mythology under the name of Bochica, or Idacanzas, who opened a passage for the waters of the lake of Funzha, assembled the wandering tribes into a social state, introduced the worship of the Sun, and like the Peruvian Manco-Capac, and the Mexican Quetzalcoatl, became the legislator of the Muyscas. These same traditions relate, that Bochica, son and emblem of the Sun,

* See vol. xiii, p. 72.

high priest of Sogamozo, or Iraca, seeing the chiefs of the different Indian tribes disputing for the supreme authority, advised them to choose for zaque, or sovereign, one among them called Huncahuá, revered on account of his wisdom and justice. The advice of the high priest was universally adopted; and Huncahua, who reigned two hundred and fifty years, subdued the whole of the country that extends from the savannahs of San Juan de los Llanos to the mountains of Opon. Bochica, devoting himself to a life of severe penance, lived a hundred Muysca cycles, or two thousand years. He disappeared mysteriously at Iraca, to the east of Tunja. This town, which was then the most populous in the country, was founded by Huncahua, the first of the dynasty of the zaques of Cundinamurca; and took the name of Hunca, from its founder, which the Spaniards afterward changed into that of Tunca, or Tunja.

The form of government given by Bochica to the inhabitants of Bogota is very remarkable from its analogy with those of Japan and Thibet. The Incas of Peru united in their person the temporal and spiritual powers. The children of the Sun were both priests and kings. At Cundinamurca, at a period probably anterior to Manco-Capac, Bochica had constituted the four chiefs of tribes, Gameza, Busbanca, Pesca, and Toca, electors; and ordered, that, after his

death, these electors, and their descendants, should have the right of choosing the high priest of Iraca. The pontiffs, or lamâs, the successors of Bochica, were considered as heirs of his virtue and sanctity; and such as Cholula, in the time of Montezuma, was to the Aztecks, Iraca had been to the Muyscas. The people thronged in crowds to offer presents to the high priests, visiting those places which were consecrated by the miracles of Bochica; and amidst the horrors of the most sanguinary warfare, the pilgrims enjoyed the protection of those princes, through whose territories they passed to visit the sanctuary *(chunsua)*, and prostrate themselves at the feet of the lama, who presided there. The temporal chief, called zaque of Tunja, to whom the *zippa*, or princes, of Bogota paid an annual tribute, and the pontiff of Iraca, were consequently two distinct potentates, as the emperor and dairi are in Japan. I have deemed it important, to cite in this place those historical incidents, which are almost unknown in Europe, in order to excite some interest in favour of a nation, of whose calendar we propose to give an explanation.

Bochica was not only considered as the founder of a new worship, and lawgiver of the Muyscas; as emblem of the Sun he regulated the seasons, and to him was attributed the invention of the calendar. He had prescribed also the order of the sacrifices, which were to be celebrated at the

end of the small cycles, on account of the fifth lunar intercalation. In the empire of the zaque, the day (*sua*) and the night (*za*) were divided into four parts; namely, *sua-mena*, from sunrising till noon; *sua-meca*, from noon till sunset; *zasca*, from sunset till midnight; and *cagui*, from midnight till sunrise. The word *sua*, or *zuha*, denotes, in the Muysca language, both the day and the Sun. From *Sua*, which is one of the surnames of Bochica, is derived *suc*, a European, or white man*; a singular denomination, which takes its origin from the circumstance, that the people, on the arrival of Quesada, considered the Spaniards as children of the Sun, *Sua*.

The least division of time among the Muyscas was a period of three days. The week of seven days was unknown in America, as well as in part of eastern Asia. On the first day of this small period a great market was held at Turmequé.

The year (*zocam*) was divided into moons. Twenty moons composed the civil year, such as was commonly observed in ordinary concerns. The year of the priests contained thirty-seven moons, and twenty of these great years formed a Muysca cycle. In order to distinguish the lunar days, the moons, and the years, periodical series

* *Gramatica de la Lingua general del nuevo Reyno elamada Mosca, por el Padre Fray Bernardo de Lugo* (professor of the Chibcha language at Santa-Fé de Bogota), Madrid, 1619, p. 7.

were employed, the ten terms of which were numbers. As the words which designate these terms exhibit several very remarkable particularities, we shall enter into some details respecting the language of Bogota.

This tongue, the use of which has become nearly extinct since the end of the last century, had been rendered the prevailing language by the victories of the zaque Huncahua, that of the zippas, and the influence of the great lama of Iraca, over a vast extent of country, from the plains of the Ariari and the Rio Meta to the north of the Sogamozo. As the language of the Inca is called *Qquichua* at Peru, that of the Moscas, or Muyscas, is known in the country under the denomination of *Chibcha.* The word *muysca,* of which *mosca* appears to be a corruption, signifies *man* or *person;* but the natives apply it generally only to themselves: and this expression is like that of the Qquichua word *runa,* which denotes an Indian of the copper-colored race, and not a white, or a descendant of European colonists. The Chibcha, or Muysca language, which, at the time of the discovery of the New Continent, was, together with that of the Inca and the Caribbean, one of the most general idioms of South America, forms a singular contrast with the Azteck language, so remarkable from the reduplication of the syllables, *tetl, tli,* and *itl.* The Indians of Bogota, or *Bacata, (extremity of the*

fields or cultivated lands) were unacquainted both with the *l* and *d*. Their language is characterized by the frequent repetition of the syllables *cha, che, chu;* as for instance, *chu chi,* we; *hycha chamique,* myself; *chigua chiguitynynga,* we ought to fight; *muysca cha chro guy,* a worthy man, the particle *cha* added to *muysca,* denoting the male sex.

The numbers, of which the first ten were chosen as terms of periodical series fitted to denote the great and small divisions of time, are, in the *Chibcha* language, one, *ata;* two, *bozha,* or *bosa;* three, *mica;* four, *mhuyca,* or *muyhica;* five, *hicsca,* or *hisca;* six, *ta;* seven, *qhupqa,* or *cuhupqua;* eight, *shuzha,* or *suhuza;* nine, *aca;* ten, *hubchibica,* or *ubchihica.* Above ten, the Muysca Indians add the word *quihicha* or *qhicha,* which signifies foot. To express eleven, twelve, and thirteen, they say, *foot one, foot two, foot three, quihicha ata, quihicha bosa, quihicha mica.* These simple expressions intimate, that, after having reckoned by the fingers of both hands, they continue to count by the toes of the feet. We have already observed, in speaking of the calendar of the nations of the Mexican race, that the number twenty, which corresponds to that of the fingers and toes of the hands and feet, acts a great part in American enumeration. In the Chibcha language, twenty is denoted by *foot ten, quihicha ubchihica;* or by the word

gueta, which is derived from *gue*, *house*. They afterward reckon twenty and one, *guetas asaqui ata;* twenty-two, *guetas asaqui bosa;* twenty-three, *guetas asaqui mica*, as far as thirty, or twenty plus *(asaqui)* ten, *guetas asaqui ubchihica;* forty, or two twenties, *gue-bosa;* sixty, or three twenties, *gue-mica;* eighty, *gue-muyhica;* a hundred, or five twenties, *gue-hisca*. We shall here observe, that the Aztecks, after the units, which resemble the nails of the Etruscans, had a cipher, or simple hieroglyphic, only for twenty, for the square of twenty, or four hundred, and for the cube of twenty, or eight thousand. I like to dwell on this uniformity of the nations of both Americas, in the first display of their simplest ideas, and in the methods fitted for the graphical expression of numerical quantities above ten: which uniformity is so much more worthy of attention, as it denotes a system of numeration very different from that which we find in the ancient continent; from the Greeks, whose notation was already less imperfect than that of the Romans, to the Thibetans, the Indians, and the Chinese, who dispute with each other the honor of that admirable invention of ciphers the value of which changes with their position.

Amidst the great number of erroneous ideas respecting the languages of nations who have made but little progress in civilization, there is none more extravagant than the assertion of

Pauw, and some other equally systematic writers according to whom no indigenous nation of the new continent knows how to reckon in its own idiom above, three *. We are at present acquainted with the numerical systems of forty American languages, and the work of Abbé Hervas alone, the *Arithmetic of all Nations*, exhibits near thirty. In studying these different languages we observe, that, when nations rise above their first rude state, their farther progress establishes scarcely any sensible difference in their manner of expressing quantities. The Peruvians had at least as much skill as the Greeks and Romans, in denoting in their language numbers of several millions; they had even, in order to express a million, a single word, not compounded, *hunu*, to which the idioms of the old world offer no one analogous. *Huc*, one; *iscay*, two; *qimça*, three; ——— *chunca*, ten; *chuc huniyoc*, eleven; *chunca iscayniyoc*, twelve; ——— *iscaychunca*, twenty; *qimça chunca*, thirty; *tahua chunca*, forty; ——— *pachac*, a hundred; *iscaypachac*, two hundred; ——— *huaranca*, one thousand; *iscay-huaranca*, two thousand; ——— *chuncahuaranca*, ten thousand; *iscay-chunca-huaranca*, twenty thousand; *pachachuaranca*, a hundred thousand; *hunu*, a million; *iscay hunu*,

* *Recherches Philosophiques sur les Américains*, Part 5, sect. 1, tom. 2, p. 162 (ed. of 1769).

two millions; *qimça hunu*, three millions. —— This same simple and regular method is observed in several other American languages, in which the numerical expressions have no other defect, than being extremely long, and very difficult to be pronounced by European organs. The need of reckoning is felt in a state of society greatly anterior to that, which we so vaguely call the state of civilization.

Among that multitude of nations of the new continent, with whose modes of numeration we are acquainted, there are some, who, according to the missionaries, cannot count above twenty, or thirty; and who denote by the term *many* whatever exceeds these numbers. But we are assured at the same time, that, to designate a hundred, these nations make small heaps of maize * of twenty grains each; which evidently proves, that the Jaruroes of the Oronoco, and the Guaranis of Paraguay, reckon by twenties, as well as the Mexicans and the Muyscas; and that from stupidity, or rather from that extreme mental indolence peculiar to the most intelligent savages, they facilitate to themselves the numeration of three twenties, or four twenties, by reckoning like children, either by the toes and fingers of the feet and hands, or forming heaps of maize.

* Hervas, *Idea del Universo Aritmetica di tutte le Nazioni conosciute*, tom. xix, p. 96, 97, and 106.

When travellers assert, that whole nations in America do not count above five, we ought to pay no more credit to this assertion, than we should to a Chinese, were he to report, that Europeans do not reckon above ten, because seven-teen and eight-teen are composed of ten and units. We must not confound the pretended impossibility of expressing great quantities, with the limits prescribed by the genius of the different languages to the numbers of the uncompounded numerical signs. These limits are attained at five, at ten, or at twenty, according to the disposition of the people to stop, in reckoning the units, at the fingers of one hand, those of both, or at the fingers and toes together.

In the idioms of the American nations the most remote from the unfolding of their faculties, six is expressed by *four with two*, seven by *four with three*, eight by *five with three*. Such are the languages of the Guaranis and the Luloes. Other tribes, already somewhat more advanced, for instance the Omaguas, and in Africa the Yalofs and the Foulahs, make use of words which signify both *hand* and *five*, as we employ the word ten. With these seven are expressed by *hand* and *two*, and fifteen by *three hands*. In Persian *péndji* signifies five, and *péntcha* the hand. In the Roman ciphers we observe some traces of a system of quinary numeration; the

units are extended to five, which has a peculiar sign, as well as fifty, and five hundred*. Among the Zamucas, as well as among the Muyscas, eleven are called *foot-one;* twelve, *foot-two;* but the remainder of the numeration of these nations is of a fatiguing length, because, instead of simple words they make use of puerile circumlocutions. They say, for instance, the *hand finished,* for five; *one of the other (hand),* for six; the *two hands finished,* for ten; and *the feet finished,* for twenty. This last number is sometimes identical with the word *man,* or *person,* to indicate, that the two hands and feet constitute the whole individual. Thus, among the Jaruroes, *noenipume,* derived from *noeni,* two, and *canipume,* man, signifies *two men,* and also the number forty. The Sapiboconoes have no simple expression for a hundred, or a thousand: they say for ten, *tunca;* for a hundred, *tunca-tunca;* and for a thousand, *tunca-tunca-tunca.* They form squares and cubes by reduplication, as the Chinese form their plural, and the Biscayans their superlative. Finally, the groups of twenty units, or the twenties of the Muyscas, of the Mexicans, and so many other nations of America, are found in the old world among the Biscayans, and the inhabitants of Armorica. The first reckon: one, *bat,* or *unan;* two, *bi,* or *daou;* three *iru,* or *tri;* twenty,

* Hervas, p. 28, 96, 102, 105, 112, 116, and 127: Mungo Park's Travels, French translation, tom. i, p. 25 and 95.

oguei, or *hugent;* forty, *berroguei*, or *daouhgent;* sixty, *iruroguei*, or *trihugent*. It is interesting to trace the formation of the small groups of five, ten, or twenty of these systems of numeration in their different gradations; all nevertheless presenting that same uniformity of feature, by which all the inventions of mankind in the first ages of its social existence are characterized.

Mr. Duquesne has made various etymological researches on the words, which denote *numbers* in the Chibcha language. He asserts, "that all these words are significant; that all depend on roots, which relate, either to phases of the Moon in its increase or wane, or to objects of agriculture or worship." As no dictionary of the Chibcha language exists, we cannot verify the justness of this assertion; we cannot be too mistrustful of etymological researches, and shall satisfy ourselves with here presenting the significations of the numbers from one to twenty, as they are given in the manuscript which I brought from Santa Fé. We shall only add, that P. Lugo, without entering into other discussions, relates, in his grammar of the Chibcha language, that the word *gue* denotes a *house;* and that he finds it unaltered in *gue-ata* (by syncope *gueta*), twenty, one house; *gue-bosa*, two twenties, forty, or two houses; *gue-hisca*, five twenties, a hundred, or five houses.

1. *Ata,* of doubtful etymology; this word is perhaps derived from an old root, which signifies water, like the *atl* of the Mexicans. Hieroglyphic: a frog. The croaking of these animals, very frequent on the plain of Bogota, indicates the approach of the season for sowing maize and guinoa. The Chinese denote the first, *tsé*, water, by a water-rat, and not by a frog.

2. *Bosa,* surrounding. The same word signifies a sort of enclosure, to protect the fields from noxious animals. Hieroglyphic: a nose with extended nostrils, part of the lunar disk figured as a face.

3. *Mica,* changeable; according to another etymology, what is chosen. Hieroglyphic: two eyes open, another part of the lunar disk.

4. *Muyhica,* whatever is black, a cloud threatening a tempest. Hieroglyphic: two eyes closed.

5. *Hisca,* repose. Hieroglyphic: two figures united, the nuptials of the Sun and Moon. Conjunction.

6. *Ta,* harvest. Hieroglyphic: a stake with a cord, alluding to the sacrifice of *Guesa* tied to a pillar, which served perhaps as a gnomon.

7. *Cuhupqua,* deaf. Hieroglyphic: two ears.

8. *Suhuza,* a tail. Mr. Duquesne is ignorant of the signification of this cipher, as well as of the following word,

9. *Aca.* Hieroglyphic: two frogs coupled.

10. *Ubchihica*, resplendent Moon. Hieroglyphic: an ear.

20. *Gueta*, a house. Hieroglyphic: a frog extended.

The numerical hieroglyphics are engraved on the 44th plate, fig. 4; and the explanations we have just given are those preserved by tradition among a small number of Indians, whom Mr. Duquesne had found instructed in the calendar of their ancestors. Those who have studied the keys of the Chinese language, and the little we know of their origin, will not consider the explanations of the American ciphers as altogether chimerical. The characteristic features are gradually effaced by a long use of signs. Who, at the present day, would recognise in the form of the Hebrew and Samaritan letters that of the simple hieroglyphics of animals, houses, and weapons, which appears to have given them birth? Our Thibetan or Hindoo ciphers, falsely called Arabian, contain no doubt some mysterious meaning. Among the Indians of Bogota, some traits of an image are doubtless preserved in *bosa*, *mica*, *hisca*, *ubchihica*, and *gueta*. The last hieroglyphic cipher is almost identical with the Indian sign of four *.

It is curious to find ciphers among a semi-

* Hager, *Memoria sulle Cifre de la Cina.* (Mines de l'Orient, t. 2, p. 73.)

barbarous people, unacquainted either with paper or writing. The *magney* (agave americana) is indigenous in both Americas; yet it is only among the people of the Azteck and Tolteck race, that the use of paper was as well known as it has been from the remotest times in China and Japan. When we recollect what difficulty the Greeks and Romans found to procure papyrus, at a period even when literature was in its full splendor, we almost regret seeing the materials of paper so common among American nations, who were ignorant of syllabic writing, and who had only rude paintings, astrological reveries, and the traces of an inhuman system of rites, to transmit to posterity.

If it be true, as Mr. Duquesne asserts, that in the Chibcha idiom the words denoting the numbers have common roots with other words, which indicate the phases of the Moon, or objects relative to rural life, this fact would be one of the most singular in the philosophical history of languages. We may conceive, that an accidental resemblance of sounds is sometimes manifested between numerical words, and things which have no connexion with numbers, as in *neuf*, nine *(novem,* in Sanscrit *nava)*, and *neuf*, new *(novus,* in Sanscrit, *nava)*; *acht,* in German, eight, and *achtung,* esteem; ꥑ, six, and ꥑ, the preposition *from; bosa,* in Chibcha, two, and *bosa,* the preposition *for.* In the same manner

we may conceive how, in languages rich in figurative expressions, the words *two*, *three*, and *seven*, may be applied to the ideas of a yoke (*jugum*), of *all powerful* (*trimurti* of the Hindoos), of enchantment, and misfortune: but is it possible to admit, that, when man in an uncultivated state first feels the necessity of reckoning, he calls four a *black thing* (*muyhica*); six, *harvest* (*ta*); and twenty, a *house* (*gue or gueta*); because in the arrangement of a lunar almanack, from the recurrence of the ten terms of a periodical series, the term *four* precedes by one day the conjunction of the Moon; or because the harvest is reaped *six* months after the winter solstice? In all languages a certain independence is observed between the roots which designate the numbers, and those which express other objects of the natural world; and we must suppose, that, wherever this independence disappears, two systems of numeration exist, one of which is posterior to the other; or that the etymological affinities, which were presumed to be discovered, are only apparent, because they rest on figurative significations. P. Lugo, who wrote in 1618, informs us indeed, that the Muyscas had two modes of denoting the number twenty; and that they said either *gueta*, house, or *quihicha ubchihica*, *foot ten*; but we shall enter no farther into discussions foreign to the object of this work. What we know with cer-

tainty respecting the lunar calendar of the Muyscas, and the origin of their numerical hieroglyphics, has no need of being supported by arguments taken from the grammar of a language, which we may almost consider as dead.

We have already seen, that the Muyscas had neither the *decades* of the Chinese and the Greeks, the *half-decades* of the Mexicans and the people of Benin *, the small periods of nine days of the Peruvians, the ogdoades of the Romans, nor the weeks of seven days *(schebuas)* of the Hebrews, which we find in Egypt, and in India, but which were known neither among the inhabitants of Latium and Etruria, nor among the Persians and Japanese. The Muysca week was distinguished from all known in the history of chronology; it had only three days. Ten of these groups formed a lunation, called *suna, high road, paved road, dyke*, on account of the sacrifice which was celebrated every month, at the period of the full Moon, in a public place, to which in every village the high road *(suna)* led from the house *(tithua)* of the chief of the tribe.

The *suna* did not begin at the new Moon, as among the greater part of the nations of the old world; but on the day after the full Moon, of which the hieroglyphic was a frog, represented on the *intercalary stone* (Pl. 44, fig. 1 *a*). The

* Palin, de l'Etude des Hiéroglyphes, tom. 1, p. 52.

words *ata*, *bosa*, *mica*, and their graphic signs, arranged in three periodical series, were made use of to denote the thirty days of a lunation; so that *mica*, like the *quartidi* of the French republican calendar, was the fourth, fourteenth, and twenth-fourth day of the month. The same custom was observed among the Greeks; who added however a couple of words, to distinguish whether the number belonged to the *month beginning* μηνὸς ἀρχομένου, or the *middle of the month*, μηνὸς μεσοῦντος, or to the *month ending*, μηνὸς φθίνοντος. As the small festivals *(feriæ)*, or the market days, returned every three days, each, during the course of a Muysca month, was governed by a different sign; for the two periodical series of three and ten terms, that of the weeks and the *suna*, have no common divisor, and can coincide only after three times ten days. According to the following table, in which the small festivals are distinguished by italic characters, *cuhupqua* (two ears) falls in the last quarter; *muyhica* (two eyes shut) and *hisca* (junction of two figures; nuptials of the Moon, *chia*, and of the Sun, *sua*) correspond to the period of the conjunction; *mica* (two eyes open) denotes the first quarter; and *ubchihica* (an ear) the full Moon. The relation we here find between the thing and the hieroglyphic, between the phases of the Moon and the signs of the lunar days, evidently prove, that these signs,

which served as real ciphers, were invented at a time when the mode of periodical series was already applied to the calendar. Among the Egyptians, the hieroglyphics of numbers appear to be independant of those of the lunar phases. According to Horapollo, the image of a star indicated the number five, either on account of the diverging rays, which the stars of the first and second magnitude present to the view, or by a mystic allusion to the regimen of the world by five stars. The representative of ten was a horizontal line placed on a perpendicular line. A distinguished person, who had the satisfaction of examining on the spot the monuments of Upper and Lower Egypt, who has carefully drawn and described them, and who from his situation was enabled to compare more hieroglyphics than any antiquary of our own times, M. Jomard, is now employed on an extremely interesting work respecting the system of numeration of the Egyptians.

Lunar days of the Suna of the Muysca Indians divided into ten small periods of three days.

First Series.....	Ata. Bosa. *Mica.* Muyhica. Hisca. *Ta.* Cuhupqua*. Last quarter. Suhuza. *Aca.* Ubchihica.
Second Series.....	Ata. *Bosa.* Mica. Muyhica. *Hisca* *. Conjunction. Ta. Cuhupqua. *Suhuza.* Aca. Ubchihica.
Third Series.....	*Ata.* Bosa. Mica *. First quarter. *Muyhica.* Hisca. Ta. *Cuhupqua.* Suhuza. Aca. *Ubchihica* *. Full moon.

Twenty moons, or *sunas*, forming the vulgar year of the Muyscas, called *zocam*, we conceive, that the *zocam* was only a small lunar cycle, and not a year in the real sense of the words *annus*, *annulus*, ἐνιαυτὸς, which suppose the return of a star to the point from which it departed. The *zocam* and the great cycle of twenty intercalary years probably owe their origin only to a preference given to the number twenty, *gueta*. Beside the *zocam*, the Muyscas had an astronomical cycle, a year of the *priests*, appointed for religious festivals, and containing thirty-seven moons; as well as a *rural* year, which was reckoned from one season of rains to another.

The *sunas* had no peculiar denomination, as we find among the Egyptians, the Persians, the Hindoos, and the Mexicans; they were distinguished only by their number. This custom appears to me the oldest in eastern Asia; it is preserved even in our days among the Chinese, and was followed by the Jews till the period of the Babylonian captivity. But the inhabitants of Cundinamurca did not reckon in their three calendars, rural, civil and religious, as far as twelve, twenty, or thirty-seven; they employed for the *sunas*, as well as for the days of the same moon, only the first ten numbers and their hieroglyphics. The first month of the second agricultural year was governed by the sign *mica*, three; the third month of the third year, by the

sign *cuhupqua*, seven; and the rest in like manner. This predilection for periodical series, and the existence of a cycle of sixty years, which is equal to the seven hundred and forty sunas contained in the cycle of twenty *years of the priests*, appear to reveal the Tartarian origin of the nations of the new continent.

As the rural year was reckoned to be composed of twelve *sunas*, the *xeques* added, unknown to the people, at the end of the third year, a thirteenth month, analogous to the *jun* of the Chinese*. The table of the Muysca moons we are about to lay down proves, that, by the employment of the periodical series, this intercalary *suna* was governed, in the first indiction, by *cuhupqud*. It is this sign, which was called the *deaf* moon, because it did not count in the fourth series, which, without the use of a *complementary term*, should have commenced, not by *suhuza*, but by *cuhupqua*. This mode of intercalation, which is found in the north of India, and according to which a lunar embolismic year of three hundred and eighty-three days twenty-one hours follows two common lunar years of three hundred fifty-four days eight hours, is that which the Athenians followed before Meton; it is the *dieteride*, in which was intercalated, after the month *Posideon*, a Ποσειδεὼν δεύτερος.

* Souciet and Gaubil, Observ. Mathém, tom. 1, p. 183.

Herodotus,* in his eulogium on the solar calendar of the Egyptians, explains himself very clearly on this simple, though very imperfect method: ὁσω Ἕλληνες μὲν διὰ τρίτου ἔτεος ἐμβολίμον ἐπεμβάλλουσι, τῶν ὡρέων εἵνεκεν.

* Herod. lib. ii, cap. 4, ed. Wesselin., 1763, p. 105: Censorin. de Die natali, c. 18: Ideler, Histor. Untersuchungen, p. 176.

THREE FORMS OF ZOCAMS OF THE CALENDAR OF THE MUYSCAS.

Rural Years of Twelve and Thirteen Moons.		Years of the Priests of Thirty-seven Moons.		Vulgar Years of Twenty Moons.	
I. *Ata*	1	I. *Ata*	1	I. *Ata*	1
	2	Bosa	2		2
	3	Mica	3		3
	4	Muyhica	4		4
	5	Hisca	5		5
	6	Ta	6	Harvest	6
Common Year...	7	Cuhupqua	7		7
	8	Suhuza	8		8
	9	Aca	9		9
	10	Ubchihica	10		10
	11	*Ata*	11		11
	12	Bosa	12		12
II. *Mica*	1	Mica	13		13
	2	Muyhica	14		14
	3	Hisca	15		15
	4	Ta	16		16
	5	Cuhupqua	17		17
	6	Suhuza	18	Harvest	18
Common Year...	7	Aca	19		19
	8	Ubchihica	20		20
	9	*Ata*	21	II. *Ata*	1
	10	Bosa	22		2
	11	Mica	23		3
	12	Muyhica	24		4
III. Hisca	1	Hisca	25		5
	2	Ta	26		6
	3	Cuhupqua	27		7
	4	Suhuza	28		8
	5	Aca	29		9
Embolismic Year	6	Ubchihica	30	Harvest	10
	7	*Ata*	31		11
	8	Bosa	32		12
	9	Mica	33		13
	10	Muyhica	34		14
	11	Hisca	35		15
	12	Ta	36		16
Deaf Month	13	Cuhupqua *	37	Embolismic Month	17
IV. Suhuza	1	II. Suhuza	1		18
	2	Aca	2		19
	3	Ubchihica	3		20
	4	*Ata*	4	III. *Ata*	1

We have already observed, that the Mexicans intercalated in a much more exact and regular manner, while the Peruvians rectified their lunar year from time to time by observations of the solstices and the equinoxes, made by means of cylindrical towers erected on the mountain of Carmenga near Cuzco*, which served to take azimuths.

Among the Muyscas, it is to the singular use of numbers, the series of which has two terms less than the rural year contains moons, that we must attribute the imperfection of a calendar, in which, notwithstanding the intercalation of the thirty-seventh month, *cuhupqua*, the harvest, during six years, falls every year in a month of a different denomination. Thus the *xeques* announced every year by what sign the *month of the ears of maize* should be presided, which corresponds to the *Abib* or *Nisan* of the calendar of the Hebrews. As the power of a class of society is often founded on the ignorance of the other classes, the lamas of Iraca preferred an uncouth calendar, in which the eighth month (October) was sometimes called the third, sometimes the fifth; and in which the differences of season, sufficiently sensible as they are on the plain of Bogota, notwithstanding the proximity of the equator, did not coincide with the *sunas* of the

* Nieremberg, p. 139: Çieça, p. 230.

same name. The priests of Thibet and of Indostan know in the same manner how to take advantage of this multiplicity of the signs that govern the years, months, lunar days, and hours; they announce them to the people, in order to levy a tax on their credulity.*

The object of the intercalation of the Muyscas was to bring back to the same season the commencement of the rural year, and the festivals which were celebrated in the sixth month, the name of which was consecutively suna *ta*, suna *suhuza*, suna *ubchihica*. Mr. Duquesne thinks, that the beginning of the *zocam* was, as among the Peruvians, the Hindoos, and the Chinese, the full moon that follows the winter solstice; but this tradition is uncertain. The first cipher, *ata*, represents water, symbolically denoted by a frog. Among the Chinese, the first asterism, in the cycle of TSE, is also that of water, and it corresponds to our sign of Aquarius†.

In the same manner as among the nations of Tartarian race‡ the cycle of sixty years, governed by twelve animals, was divided into five parts, the cycle of the Muyscas, of twenty years

* Le Gentil, Voyage dans l'Inde, tom. 1, p. 207.

† See vol. xiii, p. 338.

‡ See vol. xiii, p. 321 and 371: Dupuis, Origine des Cultes, tom. 3, pl. 1, p. 44: Bailly, Astronomie Indienne et Orientale, 1787, p. 29.

of thirty-seven *sunas*, was divided into four small cycles; the first of which closed with *hisca*, the second with *ubchihica*, the third with *quihicha hisca*, and the fourth with *gueta*. These small cycles represented the four seasons of the great year. Each of them contained one hundred and eighty-five moons, which corresponded with fifteen Chinese and Thibetan years, and consequently with the real *indictions* observed in the time of Constantine. In this division by sixty and by fifteen the calendar of the Muyscas approaches much nearer that of the people of eastern Asia, than the calendar of the Mexicans, who had cycles of four times thirteen or fifty-two years. As each rural year of twelve and thirteen *sunas* was denoted by one of the ten hieroglyphics represented in the fourth figure, and the series of ten and fifteen terms has a common divisor, the indictions were constantly terminated by the two signs of *conjunction* and *opposition*. We shall not stop here to show how the hieroglyphic of the year, and the indication of the cycle of sixty years to which that year belonged, might serve to regulate the chronology, as we have already explained it in treating of the relations of the calendars of Mexico, Thibet, and Japan.

The beginning of each *indiction* was marked by a sacrifice, the barbarous ceremonies of which, from the little we know, appear all of them to

have a connexion with astrological ideas. The human victim was called *guesa*, wandering, houseless, and *quihica*, door, because his death announced as it were the opening of a new cycle of a hundred and eighty-five moons. This denomination reminds us of the Janus of the Romans, placed at the *gates* of Heaven, and to whom Numa dedicated the first month of the year, tanquam bicipitis dei mensem*. The *guesa* was a child torn from the paternal home. He must necessarily be taken from a certain village, situate in the plains called at the present day the Llanos de San Juan, which extend from the eastern slope of the Cordilleras to the banks of the Guaviare. It was from this same country of the east that Bochica, the emblem of the Sun, came, when he made his first appearance among the Muyscas. The *guesa* was most carefully educated in the temple of the Sun at Sogamozo, till the age of ten years; he was then made to go out to walk in the paths, which Bochica had trodden, at the period when, in his instructions to the people, he had consecrated those spots by his miracles. At the age of *fifteen* years, when the victim had attained a number of *sunas* equal to that contained in the indiction of the Muysca cycle, he was sacrificed in one of those circular places, in the centre of which was an elevated

* Macrobius, Lib. i, c. 13.

column. The Peruvians were acquainted with gnomonic observations. They had a peculiar veneration for the columns erected in the city of Quito, because the Sun, as they asserted, " placed himself directly on their summits, and the shadows of the gnomon there were shorter than those in the rest of the empire of the Inca." Might not the piles and columns of the Muyscas, figured in several of their sculptures, have served in the same manner to mark the length of the equinoxial and solstitial shadows? This supposition is so much the more probable, as, among the *ten signs of the months*, we twice find, in the ciphers *ta* and *suhuza*, a cord added to a stake; and as the Mexicans were certainly acquainted with the use of the linear gnomon *.

At the time of the celebration of the sacrifice, which marked the opening of a new indiction, or of a cycle of fifteen years, the victim, *guesa*, was led in procession by the *suna*, which gave its name to the lunar month, toward the column that appears to have served to measure the solstitial or equinoxial shadows, and the passages of the Sun through the zenith. The priests, *xeques*, in masks like the Egyptian priests, followed the victim. Some represented Bochica, who is the Osiris, or the Mithras, of Bogota, and to whom

* On a carved stone found at Chapultepec. See Gama, Descripcion cron. de dos Piedras, page 100.

were attributed three heads, because, like the *Trimurti* of the Hindoos, he contained three persons, who formed only one divinity; others bore the emblems of *Chia*, the wife of Bochica, Isis, or the Moon; others were covered with masks resembling frogs, in allusion to the first sign of the year, *ata;* finally others represented the monster *Fomagata*, the symbol of evil, figured with one eye, four ears, and a long tail. This Fomagata, whose name in the Chibcha language signifies *fire*, or *melted matter in a state of ebullition*, was considered as an evil spirit. He travelled through the air, between Tunja and Sogamozo, and transformed men into serpents, lizards, and tigers. According to other traditions Fomagata was originally a cruel prince, whom, to secure the succession to his brother Tusatua, Bochica caused to be treated on the night of his nuptials, as Uranus had been by Saturn. We are ignorant what constellation bears the name of this phantom; but Mr. Duquesne thinks, that the Indians attached to it the confused remembrance of the appearance of a comet. When the procession, which reminds us of the *astrological processions* of the Chinese *, and that of the feast of Isis, had reached the extremity of the *suna*, the victim was tied to the column we have already mentioned, a cloud of

* Souciet, tom. iii, p. 33.

arrows covered him, and his heart was torn out, to be offered to the *King Sun*, Bochica. The blood of the *guesa* was received into sacred vases. This barbarous ceremony has several striking relations with that celebrated by the Mexicans at the end of their great cycle of fifty-two years, which is represented in the 15th plate *.

The Muysca Indians engraved on stones the signs, which presided over the years, the moons, and lunar days. These stones, as we have already mentioned, reminded the priests, *xeques*, in what *zocam*, or Muysca year, such or such a moon became intercalary. The stone of petro-silex, represented in orthographical projection, fig. 1; and in perspective, and of its real dimensions, fig. 2; seems to indicate the embolismic months of the first indiction of the cycle. It is pentagonal, because this indiction contains five ecclesiastical years of thirty-seven moons each; it exhibits nine signs, because five times thirty-seven moons are contained in nine Muysca years. To have a perfect comprehension of Mr. Duquesne's explanation of these signs, we should first recollect, that, by the employment of the perodical series in an indiction of nine years and five Muysca months, the intercalated months fall successively in *cuhupqua*, *muyhica*,

* See vol. xiii, p. 225 and 381; Pl. xv, No. 8.

ata, suhuza, and *hisca;* and that no intercalation can take place in the first, the third, the seventh, or the ninth year. These coincidences are rendered evident by the three concentric circles in the third figure. The first circle, which is the innermost, indicates the signs of the moons, or *sunas;* the second circle, that in the middle, shows in what Muysca year of twenty sunas one of the signs contained in the series of ten terms becomes intercalary; and finally the external circle determines the number of the intercalations, which have taken place in thirty-seven years. For instance, if it be asked in what *zocam* the sign *bosa* was intercalated, we find, that this intercalation was the sixth, or that it was made in the twelfth year of the cycle.

Mr. Duquesne, guided by the Indians, who have preserved some knowledge of the signs of the Muysca calendar, thinks, that he recognises on three faces of the stone the intercalations of *ata, suhuza,* and *hisca;* that is to say those which take place in nine years of twelve and thirteen *sunas,* which correspond to the sixth, eighth, and tenth Muysca year of twenty sunas. I am ignorant why the first two intercalations, those of *cuhupqua* and *muyhica,* are not marked. The following is his interpretation, often somewhat arbitrary, of the 1st and 2d figures.

The frog without a head, *a,* denotes, that the indiction begins by the sign *ata,* the emblem of

water. In *b*, *c*, and *d*, are sculptured three small pieces of wood, each of which is marked by three transverse lines. That of the middle is not found in the same rank as the others, to denote, that it concerns only six Muysca years, after which the intercalation falls on *quihichata*, *e*, tadpole with a long tail, and without feet, *frog in repose*. This emblem announces, that the month over which the animal presides is *useless*, and does not reckon in the twelve sunas, which take place from one harvest to another. The two figures of a frog, *a* and *e*, are placed in a sort of quadrangular plate. We may have some doubt respecting the interpretation of the hieroglyphic *e*; but Mr. Duquesne asserts, that he has observed on several idols of jade the same astrological symbol of an intercalary moon. On these idols, the animal without feet was covered with the Indian tunic *(capisayo)*, which is still worn among the lower class of people. It should be recollected, that, among the Aztecks, *the signs of the days* had also their altars *. The figures *f* and *h* indicate by eight transverse lines, divided into five and three, that at the eighth Muysca year the moon governed by suhuza is intercalated. This sign is represented at *i* by a circle, traced, by means of a cord, around a column. The Indians assert, that *f*

* See page 50.

and *h* represent serpents, which among all nations are the emblems of time. The under part of the stone exhibits at *g* the sign *hisca*, which alludes to the nuptials of Bochica and Chia *, the sign of the lunar conjunction *figured* under the form of a *temple shut*. This is the end of the first revolution of the cycle. The sacrifice of the *guesa* is going to reopen the temple, and begin the second indiction. The intercalation of *hisca* is made after nine Muysca years, which is denoted by nine strokes at *b*, *c*, and *d*. The lock, which closes the temple, is the same as that made use of at present by the natives. It is pierced on both sides, to receive two pieces of cylindrical wood. On comparing this lock with that of the Egyptians, sculptured on the walls of Karnak, and in use for thousands of years on the banks of the Nile †. We observe the difference which exists between the works of a rude people, and those of an ingenious nation advanced in the arts.

Four of these pentagonal stones taught, as the Indians assert, the twenty intercalations of the *deaf moon*, which, according to the imperfect calendar of the Muyscas, took place in a cycle of seven hundred and forty *sunas*. This cycle contained *twenty years of the priests* of thirty-

* Plate 44, fig. 4, No. 5.

† Denon, Voyage en Egypte, Plate 139, fig. 14.

seven moons each, or sixty rural years. It is known to all the nations, who live on the east of the Indus; and appears connected with the apparent movement of Jupiter in the ecliptic. We have already shown*, that among the Hindoos the dodecatemorion of the solar zodiac drew its origin from the nacshatras, or from the lunar zodiac, each month taking the name of the lunar mansion, in which the full moon took place. In like manner we have observed, that the indictions of twelve years, and the names of the nacshatras given to these years, relate to the heliacal rising of Jupiter. We may suppose, that, at the remote period when the first astronomical ideas were developed, men were struck at seeing a planet proceed through the twenty-eight lunar mansions nearly in the same number of years, as they observed of lunar revolutions from one winter solstice to another. In order to collect these great years of twelve solar years in groups, one of the numbers, which among all nations are made use of as resting points in numeration, must necessarily be employed; namely 5, 10, or 20. The preference would probably be given to the smallest of these numbers; because 5 × 12, or 60, are contained six times in the number 360; which served for the division of the circle, on account of the 360 days, which the

* See vol. xiii, p. 336.

most ancient nations of the East attributed to the year, represented under the emblem of a ring. Among the American nations, for instance among the Mexicans and the Muyscas, we find four indictions instead of five; and this singular preference for the number four is owing to the interest attached to the solstitial and equinoxial points, which denote the four seasons, or *great weeks* of the *great year**. Besides, the number of five intercalations led the Mexicans to groups of fifteen rural years, four of which form the Asiatic cycle of sixty years.

From the vague notions, which have reached us respecting the lunar signs borne in the procession of the *guesa*, and of the connexion which exists between the constellation of the frog, *ata*, and the sign of water, or the water rat, which, among the Chinese and the people of the Tartar race, opens the march of the asterisms, we may conjecture, that the ten hieroglyphics† of *ata*, *bosa*, mica, &c. originally marked, like the signs of the Mexican days‡, the division of a zodiac into ten parts. We find among the Chinese, and this fact is very important, a cycle of ten *cans*, to which the Mantchous give the names of ten colours§. It is probable, that anciently the *cans*

* See vol. xiii, p. 373. † Plate 44, Fig. 4.

‡ See vol. xiii, page 371.

§ Souciet and Gaubil, tom. 2, page 135.

of the Muyscas had also particular names; and we may suspect, that the cycles, which Mr. Duquesne has transmitted to us, alluded to these same names. All this leads us to presume, that the numerical words, *ata*, *bosa*, *mica*, &c., were substituted for the names of signs only to indicate the first sign of the zodiac, the second sign, the third sign, &c.; and that this substitution has insensibly given rise to the extraordinary idea, that the numbers themselves were significative. This subject, which is not uninteresting in the history of the migrations of nations, can be cleared up only when we shall have compared a greater number of American monuments with each other.

FRAGMENT

OF A

HIEROGLYPHICAL MANUSCRIPT

PRESERVED IN THE ROYAL LIBRARY

AT

Dresden.

PLATE XLV.

ACCORDING to the principle, that monuments explain each other; and that, to study profoundly the history of a nation, we should have under our eyes the whole of the works, to which it has affixed its character; I have determined to engrave on plates 45, 46, 47, and 48, fragments taken from the Mexican manuscripts of Dresden and Vienna. The first of these manuscripts was altogether unknown to me, when the printing of these sheets was begun. It is not easy to give a complete notice of the hieroglyphical paintings, that have escaped the destruction, with

Fragments of a hieroglyphical MS. at Dresden.

Pub.d by Longman, Hurst, Rees, Orme & Brown, Aug.t 1814.

which they were menaced, on the first discovery of America, by monkish fanaticism, and the stupid carelessness of the first conquerors*. An antiquary, who has made deep researches on the arts, the mythology, and the domestic life of the Greeks and Romans, Mr. Bœttiger, gave me information of the *Codex Mexicanus* in the royal library at Dresden. He has spoken of it lately in a work, which displays the most extensive ideas concerning the paintings of the barbarous nations, as well as those of the Hindoos, the Persians, the Chinese, the Egyptians, and the Greeks†. I am indebted to the friendship of this distinguished gentleman, and to the kindness of Count Marcolini, for the copy of the fragment contained in the 45th plate.

This Azteck manuscript, as Mr. Bœttiger assured me, was purchased at Vienna, by the librarian, Gœtze‡, in his Literary Journey to Italy, in 1739. It is on paper made of *metl* (agave mexicana), like those I brought from New Spain; and forms a *tabella plicatilis*, nearly six metres in length, containing forty leaves, covered with paintings on both sides. Each page is 0·295 met. (seven inches three lines)

* Vol. xiii, p. 178.

† Bœttiger, Jdeen zur Archæologie der Malerei, tom. i, p. 17—21.

‡ Gœtze, Denkwuerdigkeiten der Dresdner Bibliothek, erste Sammlung, 1744, p. 4.

long, and 0·085 met. (three inches, two lines, French measure) wide. This form, analogous to that of the ancient *Dipticks*, distinguishes the manuscript at Dresden from those at Vienna, Veletri, and in the Vatican; but what renders it very remarkable is the disposition of the simple hieroglyphics, many of which are arranged in lines, as in a real symbolic writing. On comparing the 45th plate with the 13th and the 27th, we see, that the Codex Mexicanus of Dresden resembles none of those rituals, in which the image of the astrological sign, that governs the half lunation, or small period of thirteen days, is surrounded by asterisms of lunar days. Here a great number of simple hieroglyphics follow each other without connexion, as in the Egyptian hieroglyphics, and the keys of the Chinese.

In general, nothing appears to me more characteristic of the works of the Chinese, than the uncouth paintings of sacred animals recumbent and pierced with darts, which we see at the bottom of the first three pages. This analogy extends to the linear signs, which remind us of the *kouas*, substituted by the Emperor Tai-hao-fo-hi, 2941 years before our era*, for the *quippus*, which we find on the inscription of Rosetta, in the interior of Africa, in Tartary, Canada,

* Julius Klaproth, Asiatisches Magazin, 1802, B. 1, p. 91, 521, and 545.

Mexico, and Peru. The *kouas*, and especially the *ho-tous*, are perhaps only a linear imitation * of the *quippus*; for the first of the eight trigrammata contains also unbroken lines, like the hieroglyphics of the Dresden manuscript. We shall not decide, whether these, in which points are often intermixed with parallel lines, express numeric quantities, a list of tributes for instance; or whether they be real cursive characters.

* Palin de l'Etude des Hieroglyphes, 1812, tom. i, page 38, 107, 114, 120; tom. v, page 19, 31, and 112: Souciet and Gaubil, Observ. Astron. tom. ii, page 88 and 187; tom. iii, page 4, fig. 7.

HIEROGLYPHIC PAINTINGS

TAKEN FROM THE

MEXICAN MANUSCRIPT,

PRESERVED IN THE

IMPERIAL LIBRARY AT VIENNA,

Nos. 1, 2, and 3.

PLATES XLVI, XLVII, AND XLVIII.

Of all the Mexican manuscripts, which exist in the different libraries of Europe, that of Vienna is the oldest known. It is mentioned by Lambeccius and Nessel* in their catalogues; and Robertson has engraved the outlines of a fragment of it. I examined it during my last abode at Vienna in 1811, and am indebted for the coloured copy of the pages exhibited on these three plates to Mr. von Hammer, a distinguished naturalist, whose different works, and particu-

* Nessel, Catal. Biblioth. Cæsareæ, tom. vi, p. 163. See above, vol. xiii. page 180.

larly his *Mines of the East*, have greatly contributed to facilitate the study of the analogies, that exist between the nations of central Asia and those of America.

The Codex Mexicanus of the imperial library at Vienna is very remarkable, on account of its beautiful preservation, and the great vividness of the colours, which distinguish the allegorical figures. It resembles in its external form the manuscripts of the Vatican and Veletri, which are folded in the same manner. It has fifty-two pages; and each page is ten inches one line long, and eight inches two lines broad. The skin, on which these hieroglyphics are inscribed, is not a human skin, as has been falsely asserted: it is probable, that it is a skin of the *mazatl*, which naturalists call the Louisiana stag, and which is common in the north of Mexico. The pages shine, as if they had been varnished; but this is the effect of a white earthy coating fixed on the skin. A similar varnish is found on the Dresden manuscript, though this is not formed of a skin, but of *metl* paper. The Codex Mexicanus of Vienna contains more than a thousand human figures, disposed in the most varied manner, and not uniformly arranged, as they are found in the rituals of Veletri and the Vatican. Sometimes two figures are grouped together; but more frequently each figure is separate, and seems to be pointing at something

with the finger. The thirteenth page is very remarkable. Divided by three horizontal lines, it evidently indicates, that the Mexicans read from right to left, and from the bottom to the top, βουστροφηδον. Though the number of the pages is equal to the number of years contained in a Mexican cycle, I have not been able to discern any thing relative to the return of the four hieroglyphics, which distinguish the years. Almost on every leaf we see, independent of the solstitial and equinoctial signs, *rabbit*, *cane*, *flint*, and *house*, the asterisms of the Jaguar, *Ocelotl*; of the Ape, *Ozomatli*; and of the Eagle with rich feathers, *Cozcaquauhtli*. These signs preside over the days, and not over the year. On examining the series of pages from thirteen to thirteen, we see nothing periodical; and, what is above all very striking, the dates, of which I have reckoned 373 in the first twenty-two pages of the manuscript, are arranged in such a manner as to have no relation to the order in which they follow each other in the Mexican calendar. We find *ome ehecatl* (1, wind) immediately before *matlactli calli* (10, house), and *ce miquiztli* (1, death's head) coupled with *chicome miquiztli* (7, death's head), though the days governed by these signs are very distant from each other. If this manuscript treat of astrological matters, as is very possible, we shall have reason to be astonished, that whole pages, for instance the first

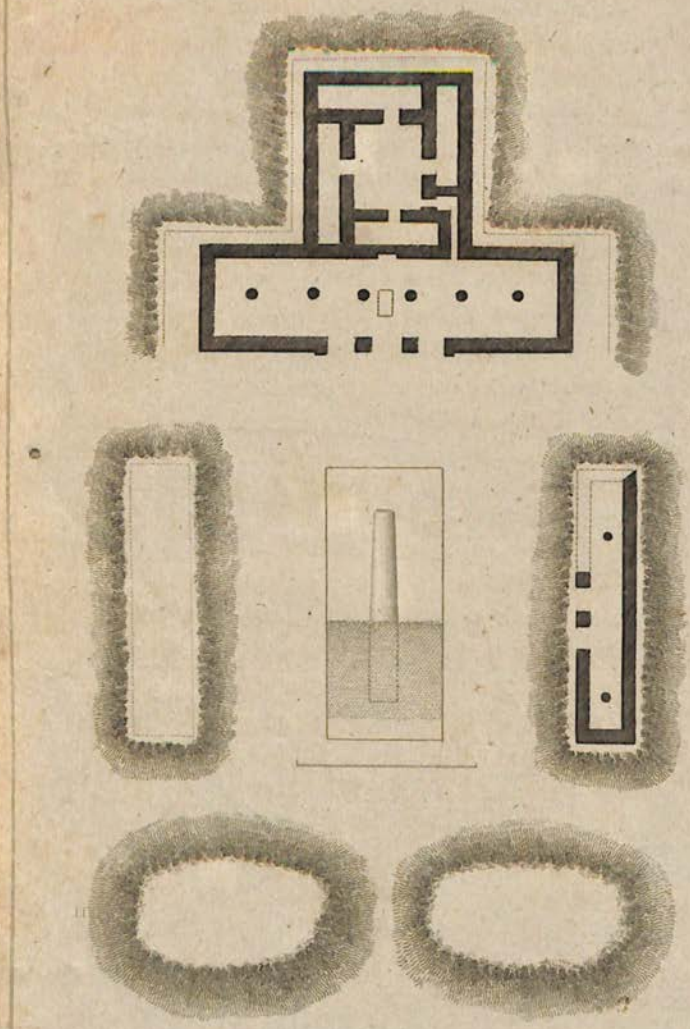
and the twenty-second, offer no indication of dates; if there were, we should easily know them by the rounds, which express the different terms of the periodical series of thirteen ciphers.

We find in Plate 46 a very singular symbolical figure representing a man, whose foot is wedged in the trunk of a tree, or in a rock; Plate 47, a woman spinning cotton; a man's head with a beard; shells; a large bird, perhaps an alcatras, drinking water; a priest kindling the sacred fire by friction*; a man with a bushy beard, carrying in his hand a kind of *vexillum*, &c. These same persons surrounded by ten other hieroglyphics are repeated on the 48th plate.

On casting our eyes over this shapeless writing of the Mexicans, it is self-evident, that the sciences would gain but little, if we should ever be enabled to decipher what a people, that had made so little progress in civilization, has recorded in these books. Notwithstanding the respect we owe the Egyptians, who have had so powerful an influence on the advancement of knowledge, we have little reason to presume, that the numerous inscriptions, traced on their obelisks, and the cornices of their temples, contain truths of much importance. These considerations however, though just, ought not, in my

* See vol. xiii, page 225, and Plate 15, No. 8.

opinion, to lead us to neglect the study of the symbolic and sacred characters. The knowledge of these characters is intimately connected with the mythology, the manners, and the individual genius of nations; it throws light on the history of the ancient migrations of our species; and is highly interesting to the philosopher; presenting him, in the uniform progress of the language of signs in parts of the Earth the most remote from each other, an image of the first unfolding of the faculties of man.



Plan of the Ruins of Mitla.

Pub.d by Longman, Hurst, Rees, Orme & Brown, Aug.t 1822

RUINS OF MIGUITLAN,

OR

MITLA,

IN THE

PROVINCE OF OAXACA;

Plan and Elevation.

PLATES XLIX AND L.

AFTER having given in this work the description of so many barbarous monuments, which are interesting merely as they are connected with history, I feel some pleasure in bringing forward to notice a building constructed by the Tzapotecks, anciently inhabiting Oaxaca, and covered with ornaments remarkable for their elegance. This edifice is known in the country under the name of the Palace of Mitla. It stands on the south-east of the city of Oaxaca, or Guaxaca, at ten leagues distance, on the road to Tehuantepec, in a granitic country. Mitla is only a con-

traction of the word Miguitlan, which signifies, in the Mexican language, *place of desolation, place of woe.* This term appears to have been well chosen for a site so savage and lugubrious, that, according to the narrative of travellers, the warbling of birds is there scarcely ever heard. The Tzapoteck Indians call these ruins *Leoba,* or *Luiva, lurial,* alluding to the excavations found beneath the walls covered with arabesques. I have had occasion to speak of this monument in my Political Essay on the Kingdom of New Spain*.

According to the traditions that have been preserved, the principal purpose of these buildings was to mark the spot where the ashes of the Tzapoteck princes reposed. The sovereign, at the death of a son or a brother, withdrew into one of these habitations, which were erected over the tombs, to deliver himself up to grief and religious rites. Others assert, that a family of priests, charged with the expiatory sacrifices which were made for the repose of the dead, lived in this solitary abode.

The plan of the palace†, drawn by a very distinguished Mexican artist, Don Luis Martin, shows, that originally there existed at Mitla five

* Vol. first, page 263.

† Plate 49.

separate buildings, disposed with great regularity. A very large gate (6), of which some vestiges are still seen, led to a spacious court, fifty metres square. Heaps of earth, and remains of subterraneous structures, indicate, that four small edifices of oblong form (8 and 9) surrounded the court. That on the right is in a state of tolerable preservation, and the remains of two columns still exist.

In the principal edifice we distinguish—

1. A terrace, raised one or two metres above the level of the court, and surrounding the walls, to which it serves at the same time as a basis, as we see more distinctly in the 50th plate.

2. A niche formed in the wall, a metre and half above the level of the *hall with pillars*. This niche, which is broader than it is high, enclosed no doubt an idol. The principal door of the hall is covered with a stone 4·3 met. long, 1·7 met. broad, and 0·8 met. high.

3 and 4. Entrance of the inner court.

5 and 6. Well, or opening of the tomb. A very broad staircase leads to an excavation in form of a cross, supported by columns. The two galleries, which intersect each other at right angles, are each twenty-seven metres long and eight broad. The walls are covered with *grecques* and arabesques.

7. Six columns, intended to support the

beams of savine wood, that formed the ceiling. Three of these beams are still in good preservation. The roof consisted of very large slabs. The columns, which indicate the infancy of the art, and are the only ones hitherto found in America, are without capitals. Their shaft is of a single piece. Some persons, well versed in mineralogy, have told me, that the stone is a fine amphibolic porphyry; others have asserted, that it is a porphyritic granite. The total height of the columns is 5·8 m.; but they are buried in the ground to one third of their height. I have sketched one of these columns separately, on a larger scale.

10. The inner court.

11, 12, and 13. Three small apartments surrounding the court, and not communicating with a fourth, which is behind the niche. The different parts of this edifice present very striking inequalities, or want of symmetry. In the interior of the apartments there are paintings, representing weapons, trophies, and sacrifices. There is no appearance of their ever having had windows.

Don Luis Martin and Colonel de la Laguna have sketched with great exactness the drawings à la Grecque, the labyrinths, and meanders, with which the exterior of the walls of the palace of Mitla is covered. These drawings, which de-

serve to be engraved entire, are in the hands of the Marquis of Branciforte, one of the last viceroys of New Spain. I had the pleasure of making several geological excursions with Mr. Martin in the environs of Mexico. He communicated to me the drawing given in the fiftieth plate, which represents three fragments of the walls; and shows, that the ornaments succeeding each other are never similar. These arabesques* form a kind of mosaic composed of several square stones, which are placed with much address by the side of each other. The mosaic is applied on a mass of clay, which appears to fill up the inside of the walls, as is also observed in some Peruvian edifices. The length of these walls on the same line at Mitla is only about forty metres; their height probably never exceeded five or six metres. This edifice, though small, might however produce some effect from the arrangement of its parts, and the elegant form of its ornaments. Several temples of Egypt, near Syene, Philæ, Elethyia, and Latopolis, or Esnè †, have still less considerable dimensions.

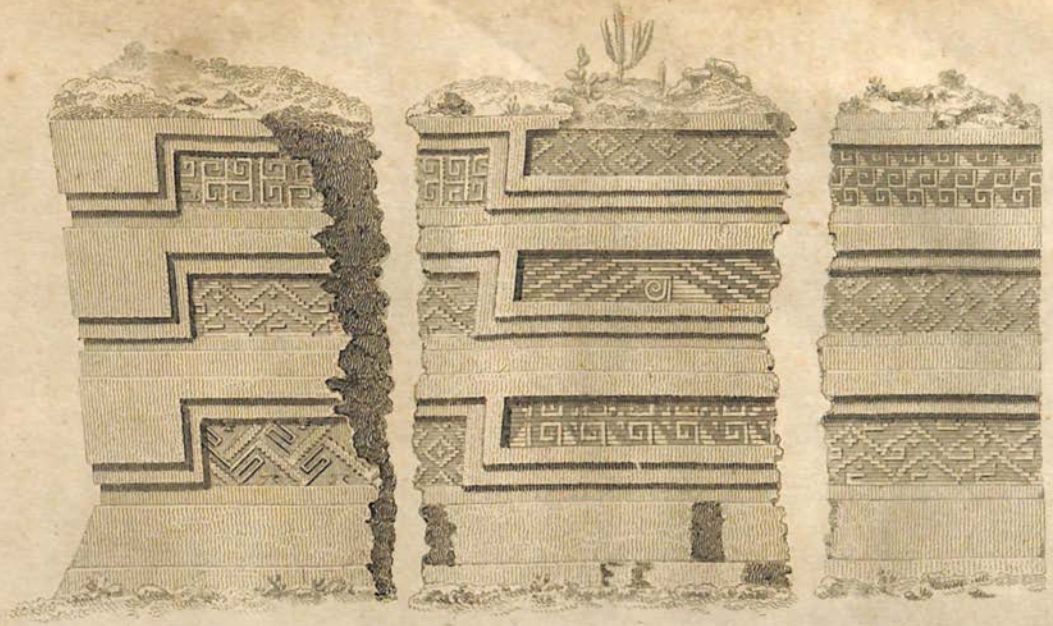
* Compare plate 39, page 90.

† Description of Egypt, ancient monuments, Vol. 1, plate 38, fig. 5 and 6; plate 71, fig. 1 and 2; plate 73, and plate 85.

In the environs of Mitla are the remains of a great pyramid, and some other buildings very much resembling those which we have just described. More to the south, near Guatimala, in a plain called El Palenque, the ruins of a whole town are evidences of the taste of the Tolteck and Azteck race for the ornaments of architecture. We are absolutely ignorant of the antiquity of these edifices, but it is scarcely probable, that it goes back farther than the thirteenth or fourteenth century of our era.

The Greek ornaments of the palace of Mitla offer, no doubt, a striking analogy with those of the vases of lower Italy, and with others which we find spread over the surface of almost the whole of the old continent: but I have already observed in another place, that analogies of this kind are very limited proofs of the ancient communications of nations; and that, under every zone, men are pleased with a *rythmic repetition* of the same forms, a repetition which constitutes the principal character of what we vaguely call *grecques*, meanders, and arabesques. Still more, the perfection of these ornaments is no indication of any great progress in civilization among the people where they are in use. Mr. Krusenstern * gives a de-

* Krusenstern, Reise um die Welt, Petersburg, 1810, tom. i, page 168, Atlas, Tafel 8, 10, and 16.



Ruins of Mitla.

Pub.d by Longman Hurst Rees Orme & Brown Aug.t 1814.

scription of arabesques of great elegance fixed by means of tatooing on the skins of the most ferocious inhabitants of Washington's islands.

VIEW

OF

CORAZON.

PLATE LI.

THE mountain of Corazon, covered with perpetual snow, derived its name from the form of its summit, which is nearly that of a heart. I have sketched it, as it appears from the Alto de Poingasi, near the city of Quito. This *Nevado* is found in the western Cordillera, between the summits of Pichincha and Ilinissa. One of the pyramids of the mountain last mentioned is seen on the left, above the eastern slope of Corazon. The apparent proximity of these two summits, and the contrast of their forms, present a very singular point of view.

It was on the summit of Corazon, that, before our voyage to America, the greatest depression of the mercury in the barometer had been observed. " M. Bouguer and myself," says M.

de la Condamine in his Historical Introduction* " began our journey in very fine weather. The persons whom we had left in our tents soon lost sight of us among the clouds, which appeared to us only a mist, from the time we entered them. A cold and piercing wind covered us in a short time with icicles. In several places we were forced to scale the rock, by climbing with our hands and feet. At length we reached the summit; and on looking at each other, we perceived all one side of our clothes, one of our eyebrows, and half our beards, stuck full of small frozen points, exhibiting a singular spectacle. The mercury stood only at fifteen inches ten lines. No one had hitherto seen the barometer so low in the open air, and probably no one had ascended to a greater height: we were 2470 toises above the level of the sea, and we can answer within four or five toises for the exactness of this calculation.

As we are at present acquainted with the influence of the temperature and the decrement of caloric on calculations made by means of the barometer, we may be permitted to doubt of the exactness of a measurement, in which the error is presumed not to amount to $\frac{1}{450}$ of the total height, though the calculation was made by the

* Voyage to the Equator, page 88. This excursion took place in July, 1738.

simple substraction of logarithms. M. de la Condamine had no instruments with him, when he visited the crater of Rucu-Pichincha. If this celebrated astronomer then attained an elevation equal to that of a rock, of which I shall speak in another place, and on which I had nearly perished with the Indian Philip Aldas, on the 16th of May, 1802, he found himself, without knowing it, at a greater height* than when he was on the top of Corazon. The absolute height of this rock, according to the formula of Mr. Laplace, is 4858 metres (2490 toises): and consequently exceeds near forty metres the elevation of the point, measured in 1738 by the French academicians. Besides, the calculation of these philosophers are all affected by the uncertainty that prevails respecting the height of the signal on Caraburn, to which Bouguer assigns 2366 metres (1214 toises), and Ulloa 2470 metres (1268 toises.)

* See my Collection of Astronomical Observations, vol. i, p. 308.

COSTUMES

OF THE

INDIANS OF MECHOACAN.

PLATES LII AND LIII.

THE Indians of the province of Valladolid, the ancient kingdom of Mechoacan, are the most industrious of New Spain. They have a remarkable talent of cutting out small figures in wood, and dressing them in clothes made of the pith of an aquatic plant. This pith, which is very porous, imbibes the most vivid colours; and, if cut spirally, yields pieces of considerable dimensions. I brought home for her majesty, the *queen of Prussia,* a collection of these Indian figures, arranged with much skill. This princess, who united to a great elevation of character an enlightened taste for the arts, ordered such as had suffered the least from carriage to be sketched. These drawings are exhibited in

plates 52 and 53. If we examine them, we must be struck with the strange mixture of the old Indian costume with that introduced by the Spanish colonists.

VIEW

OF THE

INTERIOR OF THE CRATER OF THE PEAK OF TENERIFFE.

PLATE LIV.

As the views of the Cordilleras form, at the same time, the picturesque Atlas of the narrative of the journey to the tropics, I have added this plate, though it has no relation to the new continent. It represents the summit of the Piton, or Sugarloaf, which contains the *Caldera* of the Peak of Teneriffe. We perceive the rapid declivity of the cone covered with volcanic ashes; a circular wall of lava surrounding the crater, which is no other than a solfatara; and a large breach in the wall on the western side. I had sketched this drawing in a mere geological point of view; the lithoid lavas, preyed on by the constant action of the vapours of sulphuric acid,

are placed in strata on each other, like the layers of the mountains of secondary formation.

These strata, similar to those observed on the brink of the ancient crater of Vesuvius at the Somma, appear to be the result of successive overflowings. They are formed of vitrified lava, of a porphyry with base of obsidian, and of pitch-stone. For ages past, the peak of Teneriffe, the perpendicular height of which is more than nineteen hundred toises, has acted only by lateral eruptions. The last of these eruptions is that of Chahorra, which took place in 1798. On beholding in the plain of Retama the enormous quantity of substances thrown out by the peak, we are astonished at the smallness of the crater, from which we suppose that so much ashes, pumice stone, and blocks of volcanic vitrified matter, have issued; but Mr. Cordier, who has made the longest residence of any mineralogist in the island of Teneriffe, has furnished the important observation, that the present crater, the caldera of the piton, is not the principal opening of the volcano. This learned traveller found on the northern declivity of the peak a funnel of enormous dimensions, which appears to have acted the principal part in the ancient eruptions of the volcano of Teneriffe.

SUPPLEMENT.

FRAGMENTS

OF

HIEROGLYPHIC PAINTINGS,

TAKEN FROM THE

CODEX TELLERIANO-REMENSIS.

PLATES LV AND LVI.

THE library of Paris possesses no original Mexican manuscripts, but it contains a valuable volume, in which a Spaniard, an inhabitant of New Spain, copied, either toward the end of the sixteenth century or the beginning of the seventeenth, a great number of hieroglyphic paintings. These copies are in general very carefully made, and bear the character of original drawings, as we may judge by the symbolic figures repeated in the manuscripts of Vienna, Veletri, and Rome.

This volume *, which is very little known, and from which we have taken the fragments represented in plates 55 and 56, belonged formerly to le Tellier, archbishop of Rheims; but we know not by what means it came into his hands. In its outward form it resembles the manuscript preserved in the library of the Vatican, No. 3738. Each hieroglyphic figure is accompanied by several explanations, written, as it appears, at different times, in Mexican as well as in Spanish. It is probable that these notes, which throw great light on the history, the chronology, and the religious rites of the Aztecks, were composed by a Spanish monk at Mexico, from the dictation of some of the natives. They are more instructive than those we find in the *Raccolta di Mendoza*, and the Mexican names are much more correctly written.

The *Codex Mex. Tellerianus* contains a copy of three different works; the first of which is a ritual almanac; the second, a book of astrology; and the third, a Mexican history from the year 5 *tochtli*, or 1197, to the year 4 *calli*, or 1561. We shall give a succinct idea of these three manuscripts.

* Manuscript of 96 pages in folio, under the title of *Geroglyficos de que usavan los Mexicanos.* (Cod. Teller. Remens. 14, Reg. 616.)

1. *Ritual,* in which we find the images of twelve Tolteck and Azteck divinities; and the principal festivals, which have given their names to the eighteen months of the year; for instance, the festival of *Tecuilhuitontl,* or *of all lords;* of *Micaylhuitl,* or *of all the dead;* of *Quecholi,* &c. The hieroglyphic of the five complementary days * terminates the series of the festivals. The proprietor of the manuscript has followed in his notes the erroneous system, according to which the Mexican year is supposed to begin eighteen days before the spring equinox.

2. *Astrological part.* Here we find the indication of the days that are to be considered as indifferent, lucky, or unlucky. Among the last are eleven, which the Mexicans believed to be very dangerous to domestic tranquillity. Husbands were afraid of wives born on these days; and we may suppose, that the latter were very careful in concealing either the astrological almanac, or the day of their birth. Infidelity, considered as the effect of blind destiny, was not the less severely punished by the laws. A rope was put around the neck of the adulterous woman: and she was dragged into a public square, where she was stoned to death in the presence of the husband. This punishment is

* Plate 55, fig. 1.

represented in the ninth sheet * of the manuscript.

3. *Annals of the Mexican Empire.* These include three hundred and sixty-four years. This part of the work, with which Boturini, Clavigero, and Gama, were unacquainted, and which seems to be of the greatest authenticity, deserves to be consulted by those who would wish to undertake a classical history of the Mexican nations. From the year 1197, as far as to the middle of the fifteenth century, these annals relate but a very small number of facts, scarcely one or two in an interval of thirteen years; from 1454 the narrative becomes more circumstantial; and from 1472 to 1549 we find at large, and almost year by year, an account of whatever was remarkable in the physical and political state of the country. The pages containing the periods from 1274 to 1385, from 1496 to 1502, and from 1518 to 1529, are wanting. In this last interval, the entrance of the Spaniards into Mexico took place. The figures are misshapen, but often of great simplicity. We shall cite, among the objects worthy of attention, the image of the king Huitzilihuitl, who, having no legitimate children by his wife, took a paintress†

* Plate 55, fig. 2.

† Plate 55, fig. 3.

for his mistress, and who died * in the year 13 *tochtli*, or 1414; the falls of snow †, which took place in 1447 and 1503, and which caused a great mortality among the natives, by destroying the corn that had been sown; the earthquakes of 1460‡, 1462, 1468, 1480, 1495, 1507, 1533, and 1542; the eclipses of the Sun § in 1476, 1496, 1507, 1510, 1531; the first human sacrifice ‖; the appearance of two comets in 1490 ¶ and 1529; the arrival ** and the death†† of the first bishop of Mexico, Fray Juan Zumaraga, in 1532 and 1549; the departure of Nunez de Guzman ‡‡ for the conquest of Xalisco; the death of the celebrated Pedro Alvarado, called by the natives Tonatiuh, the *Sun*, on account of his flaxen hair §§; the baptism of an Indian by a monk ‖‖; an epidemic malady, which depopulated ¶¶ Mexico under the viceroy Mendoza, in 1514 and 1545; the insurrection and punishment *** of the negroes of Mexico in 1537; a tempest which devastated the forests †††; the

* Plate 55, fig. 4.
† Plate 56, fig. 5 and 6.
‡ Plate 55, fig. 7, et Pl. 56, fig. 2.
§ Pl. 56, fig. 7.
‖ See vol. xiii, p. 217.
¶ Pl. 55, fig. 8.
** Pl. 56, fig. 1.
†† Pl. 56, fig. 6.
‡‡ Pl. 55, fig. 9.
§§ Pl. 56, fig. 4.
‖‖ Idem, idem.
¶¶ Plate 56, fig. 5.
*** Plate 56, fig. 2.
††† Plate 56, fig. 5.

ravages made by the small pox* among the Indians in 1538, &c.

If the annals of the Le Tellier manuscript accord with the chronology adopted by the abbé Clavigero in a dissertation, contained in the fourth volume of the ancient history of Mexico†; the correspondence of the Azteck and Christian years differs so much the more from that followed by Boturini and Acosta. These annals begin at the year 5 *tochtli*, or 1197, the period of the arrival of the Mexicans at Tula, which is the northern limit of the valley of Tenochtitlan. The great comet, the appearance of which is indicated near the hieroglyphic of the year 11 *tochtli*, or 1490, is that which was considered as the presage of the arrival of the Spaniards in America. Montezuma, discontented with the court astrologer, put him to death on this occasion‡. The sinister presages continued till 1509, when there was seen, according to the Le Tellier manuscript, during forty nights, a vivid light toward the east. This light, which seemed to arise from the Earth, was perhaps the zodiacal light, the splendor of which is very great and unequal under the tropics. The people consider the most common phenomena as new, when superstition gives them a mysterious meaning.

The comets of 1490 and 1529 are either

* Plate 56, fig. 3. † Storia Antica, vol. 4, p. 51.

‡ Clavigero, vol. 1, p. 288.

comets which appeared near the south pole, or those which P. Pingré * indicates as having been seen alike in Europe and China. It is remarkable, that the hieroglyphic, which denotes an eclipse of the Sun †, is composed of the disks of the Moon and the Sun, one of which projects itself on the other. This symbol is a proof of the exactitude of the notions respecting the causes of eclipses; it reminds us of the allegorical dance of the Mexican priests, which represents the Moon devouring the Sun. The eclipses of the latter luminary, corresponding to the years *Matlactli Tecpatl, Nahui Tecpatl,* and *Ome Acatl,* are those of the 26th of February, 1476; the 8th of August, 1496; the 13th of January, 1507; and the 8th of May, 1510: which served as so many fixed points for the Mexican chronology. *The Art of verifying Dates* makes no mention of any eclipse of the Sun in the course of 1531; while our annals indicate one for *Matlactli Ome Acatl,* which corresponds to this year of our era. The eclipse of 1476 enabled the Mexican historians to fix the period of the victory, which the king Axajacatl gained over the Matlatzincks; and it is that, on which Mr. Gama made so great a number of calculations ‡.

* Cometographie, vol. 1, p. 478 and 486.

† Pl. 56, fig. 7. See vol. xiii, p. 401.

‡ Gama, *Descripcion de los Piedras,* p. 85—89: Torquemada, vol. 1, lib. ii, cap. 59: Boturini, § 8, No. 13.

I am ignorant of the phenomenon*, which in the commentary is often designated by these words: "This year the star threw out smoke." The volcano of Orizava bore the name of Citlaltepetl, *mountain of the star;* and we may presume, that the annals of the empire contained the different epochas of the eruptions of this volcano. Nevertheless, at p. 86 of the Le Tellier manuscript, it is expressly said: "that the star which smoked, *la estrella que humeava*, was *Sitlal choloha*, which the Spaniards call Venus, and which was the object of a thousand fabulous tales." Now, I ask, what optical illusion could give Venus the appearance of a star throwing out smoke? Was it a kind of halo formed around the planet? As the volcano of Orizava is placed to the east of the city of Cholula, and its fiery crater resembles during the night a rising star, the volcano and the morning star may in symbolic language perhaps have been confounded with each other. The name which Venus still bears among the natives of the Azteck race is that of *Tlazolteotl.*

* Plate 56, fig. 2.

FRAGMENT

OF A

CHRISTIAN CALENDAR,

TAKEN FROM THE

AZTECK MANUSCRIPTS,

PRESERVED IN THE

Royal Library of Berlin.

PLATE LVII.

THIS hieroglyphic calendar, made after the arrival of the Spaniards, is that of which we have spoken in the beginning of this work *. The paper is of *metl;* the figures are merely sketched, and not coloured, as in the wrappers of some of the Egyptian mummies, and appear more like writing than painting. The days of festivals are indicated by rounds, which denote the units. The Holy Ghost is represented under the form

* See vol. xiii, p. 191.

of the Mexican eagle, *cozcaquauhtli.* At the period when this calendar was composed, Christianity was confounded with the Mexican mythology. The missionaries not only tolerated, they even favoured to a certain point this mixture of ideas, symbols, and worships. They persuaded the natives, that the Gospel had already been preached in America at a very remote period; they sought its traces in the Azteck rites with the same ardor, as in our days the learned, who addict themselves to the study of Sanscrit, feel in discussing the analogy of the Greek mythology with that of the banks of the Ganges, and of the Boorampooter*.

* Essai Politique sur la Nouvelle Espagne, vol. 1, p. 95.

HIEROGLYPHIC PAINTINGS,

FROM THE

Raccolta di Mendoza.

PLATES LVIII AND LIX.

THESE engravings tend to throw some light on what we have already said of the rites and manners of the ancient Mexicans *. We cannot give a clearer account of the interesting manuscript known under the name of the *Raccolta di Mendoza*, than by introducing here the explanation, which M. de Palin has given of it in his work on the study of hieroglyphics. We are far from admitting, without exception, all the parallels drawn by this ingenious writer; but we think it a beautiful and fertile idea, to consider all the nations of the Earth as belonging to the same family; and to recognise, in the

* See vol. xiii, p. 183.

Chinese, Egyptian, Persian and American symbols, the type of a language of signs, which is common, we may say, to the whole race, and which is the natural offspring of the intellectual faculties of man.

"The collection preserved by Purchas and Thevenot represents, in three parts, the foundation of the city, and its increase by the conquests of its princes; its support by the tributes paid by the conquered cities; its institutions, and the detail of the life of its inhabitants. The whole of this is obvious at the first view. We first distinguish the ten chiefs of the colony, that founded the empire, having the symbols of their names marked over their heads. They meet with the objects which form the arms of the city of Mexico. That stone surmounted by an Indian fig-tree, on which is an eagle*, recalls to mind the eagle perched on a tree, and the cup, which the god Astrochiton gave as signs to distinguish the spot where Tyre† was to be built. A house, a habitation, denotes the new city‡; a buckler with arrows, its occupation by force§. The symbols near two other houses surrounded by combatants teach us the names of the two cities first conquered. The remainder of the history is composed in the same spirit, and of similar

* Pl. 58, fig. 1. † Nonnus, XL, v. 473.

‡ *Stone of Rosetta*, and Denon, Pl. CXXXIII.

§ Horapoll., II, 5, 12.

articles; every-where we see weapons, the instruments of conquest, between the figures of the conquering princes and of the conquered cities, with the symbols of their names and of the years. The last were arranged near the representation of each event, in a sort of frame, which encircles the paintings, and which contains the hieroglyphics of a chronological cycle of fifty-two years.

"The accounts of the taxes form the second part of the collection of Mendoza, composed of the names of the tributary cities, and of the articles which each was bound to deliver in kind to the treasury and temples, denoted at the head of this list by the symbol of *calli*. These articles consist of all the useful productions of nature and of art: gold*, silver, and precious stones: weapons, mats, cloaks, and blankets†; quadrupeds, birds, and feathers; cacao, maize, and vegetables; colored paper, borax, salt, &c. These were represented either by figuring the thing containing for that contained in it; as vases‡, baskets, bags, chests, and packages of a determinate size; or by delineating the form of the thing itself. The quantity is expressed by means of numerical signs, which denote the units by points and balls; the twenties§ by a character

* Pl. 58, Fig. 5. † Pl. 58, Fig. 9.

‡ Pl. 58, Fig. 6. § Pl. 58, Fig. 5.

which is found among the hieroglyphics; four hundred, or twenty times twenty, by an ear of corn*, a pine-apple, or a quill, in which gold dust was kept; twenty times four hundred, or eight thousand, by a purse†, a value determined, as it appears, by the custom of enclosing so many thousand cacao nuts in a bag. This is the mode in which a sum of money was formerly designated in the Lower Empire, and is still in the Ottoman states.

"This method and these denominations indicate the origin of the symbols of numbers in the Mexican book. We see how great an analogy this painting, which represents a state of primitive society, offers with the historical inscriptions in the ruins of Thebes, of which Tacitus speaks; and in which a long list of conquests was followed in the same manner by that of taxes paid in kind by the conquered nations‡. The laws, like the religious precepts of the mysteries, were exhibited within the temples, and on the chests of mummies; as those pictures of the mysteries of Eleusis, copied from those of Egypt, which tra-

* Pl. 58, Fig. 10. † Pl. 58, Fig. 16.

‡ *Legebantur et indicta gentibus tributa, pondus argenti et auri, numerus armorum equorumque, et dona templis, ebur atque odores, quasque copias frumenti et omnium utensilium quæque natio pendeat.*

ced the history of human life from the cradle to the tomb*.

"Mexican laws form the third part of the manuscript we have under examination, which embraces the whole life of the citizens, placing before their eyes a picture of all the actions the law prescribes, and of which they see before hand the model. In the same manner as in the hieroglyphics on amulets the optative mood is to be understood, we have only to read the whole of this chapter in the imperative: let the mother instruct the infant in the cradle by words, represented by a tongue; let the infant be put into the cradle from the first day of its birth, marked by a first flower, which is fastened to the cradle, and which is followed by three others; after having devoted the infant to the gods†, let the midwife wash it on the fifth day in the court, amidst weapons or implements suitable to the occupations of its sex. This ceremony is performed before three children (denoting children in general), who name the new-born babe, and celebrate its birth by eating maize‡. In the inscription of Rosetta, the same thing is ordered by a decree,

* Themistius, in Stobeus, *Serm.* 119, p. 104.

†. With five prayers, to the two masters of Heaven and water, to all the gods, to the Moon, and to the Sun.

‡ Pl. 59. fig. 1.

and by a similar representation; the three children called to celebrate the births, added to three flowers, forming the character of the celebration of the day of birth, which is represented also by the rising of the Sun*. The whole of the details of this picture, or of this table of the Mexican laws, recalls to mind the baptism of the proselytes from Judaism in the presence of three witnesses; and the ἀμφιδρόμια of the Greeks, in which the infant, on the fifth day from its birth, was devoted to the gods, and obtained a name, after expiatory ceremonies. The law ordains moreover in this first division, that parents should present the child in the cradle before the high priest, and the master that taught the use of weapons, and should consider its future destination: his education is prescribed by the paintings on the following tables, which exhibit the verbal instruction, and indicate the allowance of the half cake and whole cake, by the hermetic mark of seven†, which parents are allowed to give their children from three to four years old. The numbers of years are marked by circles, as in the hieroglyphics, and in the language of the Romans. At five years of age the boy carries loads, and the girl attends her mother spinning. At six, the girl spins herself, and is allowed like the boy a

* Analyse de l'Insc. de Rosette, p. 145.

† Pl, 59, Fig. 2.

cake and half at a meal. At eight years of age, the instruments of punishment are shown to disobedient and idle children, and they are threatened; but it is not till they have attained ten years of age, that they are actually punished*. At thirteen and fourteen the children of both sexes share the labors of their parents; they row, fish, cook, or weave†. At fifteen, the father presents two sons to two different masters of the temple and military college; this is the age of choosing their way of life: the girls are settled by marrying. From this period the years are no longer reckoned; we see the young man follow and serve the priests and the warriors, receiving instructions and undergoing chastisements in this double career. He obtains the honors attached to employments; blazoned bucklers, which are the marks of noble actions; the red riband, with which the head of the initiated knight is encircled; and the other distinctions, which the sovereign grants to valour, according to the number of the prisoners made. These different ranks are designated from the private soldier to the principal chiefs and generals of the army, and even the rebellious and punished cacique. The history of this cacique brings on the stage messengers of state, spies, officers of justice, judges, the great tribunals of the empire, and finally the sovereign himself, seated on his throne.

* Pl. 59, fig. 3 and 4. † Pl. 58, fig. 12.

"These pictures are followed by representations of several trades, which obtain regulations; and of several crimes, with their punishments. The whole is terminated by the man and woman at the age of threescore years and ten, enjoying on the brink of the tomb, in the midst of their posterity, the royal Persian privilege of intoxication, and of escaping from the law to forget their sufferings*. The circle which denotes the year is repeated in this place, but divided by a double Greek cross, and surmounted by the numerical sign of twenty, to mark each score. Among the characters in this part of the work we must cite that of the nocturnal sky, observed by an astronomical priest†. This section of the circle, covered with small rounds with eyes, reminds us of the Egyptian hieroglyphic of the sky, and its images covered with eyes‡."

We shall insert in this place the notes, which are added to the collection of Mendoza, from the Mexican text, in the two editions of Purchas § and Thevenot ‖.

* Pl. 59, fig. 7. † Pl. 58, fig. 1.

‡ Palin on the Study of Hieroglyphics, vol. 1, p. 88—97. The text of the original being disfigured by typographical errors, slight changes have been made, without which several phrases would have been unintelligible.

§ *Pilgrim, in five books*, vol. III, p. 1068, 1071, 1085, 1087, 1089, 1091, and 1097.

‖ *Relation de divers Voyages curieux, par Melchisedec Thévenot*, t. 2, p. 47.

Pl. LVIII, Fig 1. The ten founders of Tenochtitlan: *a*, Acacitli; *b*, Quapan; *c*, Ocelopan; *d*, Aguexotl; *e*, Tecineuh; *f*, Tenuch; *g*, Xominitl; *h*, Xocoyol; *i*, Xiuhcaqui; *k*, Acotl. The city of Tenochtitlan, or Mexico, is denoted by the weapons employed in conquering the territory on which it was built: we see above these weapons the *tuna*, or Indian fig tree, *m*, fixed on a rock; and the eagle, *n*, perched on the fig tree. (An ancient prophecy foretold, that the migrations of the Aztecks should not terminate, till the chiefs of the nation met with an eagle perched on a cactus. The place where this prodigy took place was to be the site of their new city.) The lines *t*, which form a cross, indicate either the dykes, or the canals, which traversed the marshy country inhabited by the founders of Tenochtitlan.

Fig. 2. *a*, ten years of the reign of Chimalpupuca, *b*; a buckler, *c*, and darts to denote the conquest of Tequixquiac, *d*, and of Chalco, *e*. Death of Chimalpupuca, *f*. Insurrection of the inhabitants of Chalco, *g*. They destroy four of the enemy's boats, *h*; and kill

five Mexicans, *i*. (We may be surprised, that the remembrance of so trivial a circumstance should have been preserved for ages.)

Fig. 3. Tribute of eight hundred tigers skins.

Fig. 4. Tribute of twenty tigers skins.

Fig. 5. Tribute of ingots of gold and gold dust.

Fig. 6. Tribute of four hundred pots of honey drawn from the maguey, *agave americana*.

Fig. 7. Soldiers of the order of priests.

Fig. 8. One of the chief priests, *a*, goes in the night, *d*, to the mountain to do penance; he carries fire, and a purse filled with perfume of copal; he is followed by a novice, *b*. Another priest, *c*, plays during the night on an instrument of music, called *téponatztli*. A third priest, *f*, notes the hour by observation of the stars, *e*.

Fig. 9. Tribute of stuffs for clothing. Each bale (*a*, *b*, *c*, *d*, and *e*) contains four hundred pieces, indicated by the cipher inscribed on it.

Fig. 10 and 11. The same.

Fig. 12. A mother, *n*, instructing her daughter, *o*, to weave, *q*.

Fig. 13. A goldsmith instructing his son.

Fig. 14. Tribute: ten times four hundred, or four thousand mats, and as many seats of rushes.

Fig. 15. Tribute: four hundred sea shells from the coast of Colima.

Fig. 16. Tribute: eight thousand bales of copal.

Plate LIX. Fig 1. "The figure, *a*, is a woman just delivered. Her child is placed in the cradle, *c*; and four days after, marked by the four rounds, *b*, the midwife, *d*, carried the infant into the court of the house of the woman delivered, and placed it on rushes, called *tule*, *i*, spread on the ground; three young boys, *f*, *g*, *h*, seated near these rushes, ate *ixicue* or toasted maize mixed with boiled beans, represented in the figure before them in a vase. The midwife, having washed the child, tells the boys to pronounce aloud the name it is to bear. When the infant was carried to be washed, if it were a boy, they put into his hands the tools, *e*, appropriate to his father's trade; a shield and darts, for instance, if the father were a soldier: and if the infant were a girl, a spindle or distaff, *l*, a basket, *m*, a broom, *k*. When this ceremony of baptism and ablution was finished, the midwife restored the child to its mother. If the boy were the

son of a soldier, the shield and darts were buried near the place where probably he might at a future day engage the enemy; with respect to the implements belonging to girls, they were buried under a *metate*, or stone on which the cakes of maize were kneaded. When the father, *q*, and the mother, *r*, of the child, *o*, were disposed to devote him to the ecclesiastical state, they brought him to the temple on the twentieth day after the ablution. On presenting him at the altar, they added offerings of rich stuffs and eatables. When the child was old enough, they put him into the hands of the high priest, *n*, to instruct him with respect to the order of the sacrifices. If the parents wished their child to be a soldier, he was offered to the *teachauch*, *p*, whose office was to instruct youth in the art of war."

Fig. 2. "Allowance, or food granted to children at each meal: the father, *a*, gives precepts to his son, *c*, three years old, marked by three rounds, *b*. The boy of this age had at each meal half a cake of maize, *d*. The mother, *e*, gives precepts to her daughter at three years of age, *g*; the daughter had

also the allowance of half a cake, *f*."

Fig. 3 and 4. Punishments of children. They are pricked with leaves of maguey, or exposed to the smoke of pimento.

Fig. 5. The adulterous woman and her paramour bound together to be stoned. See Le Tellier's Manuscript in the Library at Paris, Pl. iv, fig. 2.

Fig. 6. "The father, *a*, puts one of his sons, *b*, fifteen years old, into the hands of the *tlamacazqui*, *c*, or high priest of the temple Calmacac, *d*, to instruct him, and make him a priest. Another son, *e*, of the same age, *h*, is sent by his father to school, *g*, to be taught by the master who is set over the children.

"When a girl married, the *amanteza*, or matchmaker, *i*, carried her, towards evening, on his back, *w*, to the youth destined to become her husband. He was lighted by four women, *x*, *z*, each bearing in her hand a kind of torch of pine wood, marked by the ciphers 1, 2, 3, and 4. The parents of the youth came out to receive the girl at the entrance of the court of the house, and introduced her into a room, where the youth waited for her; they placed themselves on seats arranged on a mat, *o*; and the whole

ceremony of the marriage consisted in tying one corner of the young man's garment, *l*, to a corner of that of the girl, *m*. They offered to their divinities, by way of sacrifice, the incense of copal, *q*, which they burned in a vase. Two old men, *i*, *r*, and two old women, *n*, *v*, served as witnesses. The newly married couple afterward ate the provision set before them, and drank out of cups, *t*, *pulque*, represented by the pot, *s*. The old men and women also ate; and, after the repast, each separately exhorted the young married persons to live happily together."

Fig. 7. "The law permits a man of seventy years of age, *f*, to intoxicate himself in public, or in private. His wife, *g*, has the same privilege, if she be a grandmother."

FRAGMENTS

OF

AZTECK PAINTINGS,

TAKEN FROM A MANUSCRIPT PRESERVED IN THE

Library of the Vatican.

PLATE LX.

THESE symbolical figures are chosen from among those of the manuscript of which we have spoken in the preceding volume of this work, p. 201.

VOLCANO OF PICHINCHA.

PLATE LXI.

THIS view was taken at Chillo, the country house of the Marquis de Selvalegre, whose son accompanied us in our journey to Mexico, and the river of Amazons. The volcano is seen over the savannah of Cachapamba. In my sketch may be distinguished (1) Rucupichincha, or the summits covered with snow that surround the crater; the cone of Tablahuma (2); the Picacho de los Ladrillos (3); the rocky summit of Guaguapichincha (4), which is the *cacumen lapideum* of the French academicians; finally, the top, on which is placed the famous cross, that served as a signal in the measurement of the meridian (5). The absolute height of these summits is, according to my observations, from two thousand three hundred to two thousand five hundred toises; but as the plain of Chillo is itself one thousand three hundred and forty toises above the level of

the ocean, the view of the volcano of Pichincha is less majestic on the eastern, than on the western side, where the vast forests of the Esmeraldas begin. The distances, and several angles of altitude, which served for this sketch, were determined by means of a sextant of Ramsden's.

PLAN

OF A

FORTIFIED HOUSE OF THE INCA,

SITUATE ON THE

CORDILLERA OF ASSUAY.

RUINS OF A PART OF THE

ANCIENT PERUVIAN CITY OF CHULUCANAS.

PLATE LXII.

1. The plan of the fortified house of Cannar was taken by M. de la Condamine in 1739; his sketch, which is at Paris in the archives of the Bureau des Longitudes, has been rectified from the observations I made in 1803, and the plate is inserted in the Memoirs of the Academy of Berlin *.

* Mém. de l'Académie de Berlin, 1746, p. 448—454.

A B. A platform of earth raised five or six metres above the level of the soil.

C D. A square building, of which we have given the sketch in Plate 20th. In the western apartment are cylindrical stones, which jut out half a metre from the wall, at right angles, and seem to have been intended for the purpose of hanging weapons on.

L F. A terrace which supports the platform A B, and rests on a second terrace G H, two metres broad, and five metres in height. The platform A B has the form of an oblong oval, the greater axis of which makes, with the magnetic meridian, the angle N. 6° W., assuming the variation of the needle to be 8° north-east.

S K and L M. Two sloping paths leading to the esplanade to the south and north of the fortress, the first ending at the middle, the second at about a quarter of the length of the platform. At the end of the northern path, M, begins the inferior terrace G H.

N O. A wall reaching from one gable end to the other, and separating the square building into two apartments.

P and Q. The two doors opposite the two semicircular extremities, A D, which terminate the platforms.

R S. A terrace cased with stones, four metres below the oval platform. This terrace commences at the eastern extremity of the platform; it is at first saliant, R, a few feet to the north, as if to bar and terminate the fausse-braie, G H; thence it turns off at a right angle toward the west, and stretches the length of twenty-eight metres, forming a curtain, the western extremity of which is supported by a kind of square bastion T V, composed of two flanks and a front. Beyond this bastion are the vestiges of a wall, without any appearance of fortification. This wall followed the direction of the most elevated part of the ground, which gradually flattens; returned to the east by the south, making a half circle, T V; and afterward became again parallel to the length of the platform. The part V X of the wall is in good preservation.

X Y Z W L. An irregular enclosure, divided into four courts; the first, of which some vestiges remain on the eastern side at *w* and Δ Γ, is an oblong square of eighty feet by a hundred and ten. It appears to have been surrounded by small separate dwellings not so broad as they were long, of which the foundations are still distinguishable in some places.

$\Gamma z \mu \Delta$. The second court, somewhat smaller than the first, and without the least vestige of any building.

XYZ $\mu s g$. The third court, the largest of the whole, but very irregular. The walls of this part of the building are of modern construction; and it is possible, that the small square building, of which we see the ruins, μ, were originally without the fortress.

a, b, c, d, e, f. Six halls of the fourth court, contained in the irregular enclosure, R S T V X, to the south and west of the fortress.

r and *s*. Vestiges of two gates pierced in a wall, which was parallel to the wall, *g, i, h*.

g h. A narrow gallery, which led to the bastion, S T; it is near the inner railing, Z K, which leads to the platform of the fortress on the south side.

k and *l*. Doors of the two edifices, *d* and *e*.

n and *o*. Doors open to the east and the north, leading into the small edifices, *e, f*. These edifices, intended as lodgings for the guard of the Inca, appear to have been built with much less care than the preceding, and without the aid of the square. M. de la Condamine supposes, that the prince and his wife dwelt in the buildings marked *a* and *b*. The gates, *p, q, g*, and *h*,

are high enough for the passage of a man seated in a palanquin, and carried on the shoulders of the servants. The niches * formed in the inner walls are indicated in the plan.

The principal view in this work being to present an exact idea of the state of the arts among the civilized nations of America, we have preferred giving a description of the ruins of the house of the Inca at Cannar as they appeared in 1739. Several walls have been thrown down since that period; and I had great difficulty in finding the whole of the divisions, which are traced in the plan of M. de la Condamine.

II. The ruins of the ancient city of Chulucanas are very remarkable, on account of the extreme regularity of the streets and buildings. We find these ruins on the ridge of the Cordilleras, at fourteen hundred toises height, in the Paramo of Chulucanas, between the Indian villages of Ayavaca and Guancabamba. The high road of the Inca, one of the most useful and at the same time one of the most stupendous works ever executed by men, is still in good preservation between Chulucanas, Guamani, and Sagique. On the summit of the Andes, in excessively cold spots, which could have no attraction but for the inhabitants of Cuzco, the remains of great edi-

* See vol. xiii, p. 243, and 259.

fices are every-where seen. I counted nine between the Paramo of Chulucanas and the village of Guancabamba: they are called in the country by the sounding title of palaces of the Inca; but it is probable, that the greater part were built to facilitate the military communications between Peru and the kingdom of Quito.

The city of Chulucanas appears to have been placed on the slope of a hill, on the brink of a small river, from which it was separated by a wall. Two openings made in this wall correspond with the two principal streets. The houses, built of porphyry, are distributed into eight quarters, formed by streets cutting each other at right angles. Each quarter contains twelve small habitations, so that there are ninety-six in that part of the city, of which we give the plan in the sixty-second plate. I prefer the word habitation to that of house, because the latter gives the idea of several apartments communicating together, and in the same enclosure; while the habitations of Chulucanas, like those of Herculaneum, consist only of a single room, the door of which probably opened into an inner court. In the centre of the eight quarters, which we have just described, are the remains of four large buildings of an oblong form, and separated by four small square buildings, occupying the four corners. On the right of the river, which bounds the city, we discover some very uncouth

structures rising in the form of an amphitheatre. The hill is divided into six terraces, each platform of which is faced with hewn stone. Farther on we find the baths of the Inca, of which I shall give a more ample description in the Historical Narrative of my Travels. We are surprised at finding baths on an elevated plain, the springs of which have scarcely a temperature from ten to twelve degrees of the centigrade thermometer, and where the air cools as low as six or eight degrees.

RAFT

OF THE

RIVER OF GUAYAQUIL.

PLATE LXIII.

THIS drawing is interesting under a double point of view, as exhibiting a collection of the fruits of the equinoxial zone, and showing the form of those large rafts *(balzas)*, which the Peruvians have used from the most remote times on the coasts of the South Sea, and at the mouth of the river of Guayaquil. The raft, loaded with fruits, is sketched at the moment when it is anchoring in the river. Toward the head are seen pine-apples, the pearshaped fruit of the laurus persea [the alligator pear], the berries of the theophrasta longifolia, bunches of plantains, flowers of the passiflora and lecythis, shaded by leaves of the heliconia and the cocoa tree. The rafts employed either for fishing or the conveyance of merchandise are from sixteen to twenty-five metres in

length, and are composed of eight or nine beams of very light wood *. Don George Juan † has published some very curious remarks on the manner of working these barks, which, though of unwieldy appearance, sail very close to the wind.

* Bombax and ochroma.

† Voyage Hist. de l'Amérique méridionale, tom. 1, p. 168.

SUMMIT

OF THE

MOUNTAIN OF ORGANOS,

AT ACTOPAN.

PLATE LXIV.

THE porphyritic mountain of Mamanchota, known at Mexico under the name of *los Organos*, is situate to the north-east of the Indian village of Actopan. The spindle-shaped summit of bare rock is a hundred metres in height; but the absolute elevation of the top of the mountain, from which the Organos rises, is 1385 toises. * It is on the road from Mexico to the mines of Guanaxuato, that the rock of Mamanchota is seen at a very great distance detaching itself from the horizon; and, towering amidst a forest of oaks *, it exhibits a very picturesque appearance.

* Essai Polit. sur la Nouvelle-Espagne, tom. 1, p. 289.

MOUNTAINS

OF

COLUMNAR PORHYRY

OF JACAL.

PLATE LXV.

THIS view was taken from the plain of Copallinchiche, which forms a part of the great Mexican plain, and is thirteen hundred toises (2530 metres) above the level of the ocean. The mountains of Oyamel and Jacal, composed of enormous columns of trappean porphyry, are crowned with pines and oaks. It is between the farm of Zembo and the Indian village of Omitlan, that the celebrated mines of *iztli*, or obsidian, worked by the ancient Mexicans, are found. This spot is called in the country, *the mountain of knives, el Cerro de las Nabajas.* The summit of Jacal is sixteen hundred and three toises (3124 metres) in height. My sketch gives the outlines of the Cerro de Santo Domingo (1), of Mocaxetillo (2), of Orcones (3), and of Jacal, or Cerro Gordo (4).

A

HEAD SCULPTURED IN HARD STONE

BY THE

MUYSCA INDIANS.

BRACELET OF OBSIDIAN.

PLATE LXVI.

THE sculptured head is the work of the ancient inhabitants of the kingdom of New Grenada. The stone, considered by some mineralogists as a *smaragdite*, is undoubtedly nothing but a green quartz passing into hornstone. Perhaps this quartz, of extreme hardness, is tinged, like the *chrysoprase*, by the oxid of nickel. It is perforated in such a manner, that the openings of the cylindric hole are in planes cutting each other at right angles. We may suppose, that this perforation was made by means of tools of copper mixed with tin; for iron was not used either by the Muyscas or the Peruvians.

The obsidian bracelet was found in an Indian tomb, in the province of Mechoacan, in Mexico. It is extremely difficult to form an idea of the manner, in which so fragile a substance has been worked. The volcanic glass, perfectly transparent, is reduced to a plate, the curvature of which is cylindrical, and which is less than a millimetre in thickness.

View of the Lake of Guatavita.

VIEW

OF THE

LAKE OF GUATAVITA.

PLATE LXVII.

THIS lake is situate to the north of Santa Fe de Bogota, at the absolute height of more than fourteen hundred toises, on the ridge of the mountains of Zipaquira, in a wild and solitary spot. In the drawing are shown the remains of a flight of steps, serving for the ceremony of ablution; and a cut in the mountains, which was attempted a short time after the conquest, to dry up the lake, and find the treasures, which, according to tradition, the natives had there concealed, when Quesada appeared with his cavalry on the plain of New Grenada.

VIEW

OF THE

SILLA DE CARACAS.

PLATE LXVIII.

THIS granitic mountain, very difficult to scale, because its slope is covered with a close turf, is more than thirteen hundred and fifty toises in absolute height. From the coast of Paria to the Sierre Nevada of S^{a}. Martha, no summit is found so lofty as the Silla de Caracas, called also *Montanna de Avila.* The two rounded summits bear the name of *the saddle (silla);* and serve as land marks for the harbour of Guayra. I have sketched this mountain on the south side, as it presents itself from the coffee plantation of Don Andrew Ibarra.

THE

DRAGON-TREE

OF

OROTAVA.

PLATE LXIX.

THIS plate is a representation of the colossal trunk of the dracœna draco in the island of Teneriffe, mentioned by every traveller, but which has never yet been engraved. It is between fifty and sixty feet in height; its circumference near the roots is forty-five feet; and it had attained this size, when the Spaniards landed first at Teneriffe in the fifteenth century. As this plant of the family of the monocotyledons grows extremely slow, it is probable, that the dragon-tree of Orotava is older than the greater part of the monuments of which we have given a description in this work.

LETTER

From Mr. Visconti, Member of the National Institute of France, to M. de Humboldt, on certain monuments of the American nations.

In perusing that part of your work, which concerns the monuments of the nations of America, and in which you have had the kindness to give me so valuable a testimony of your friendship, I have observed, among the great number of facts hitherto unknown, and observations altogether new, contained in these volumes, a few articles, in which my opinion differs from yours. This difference, it is true, relates only to some peculiarities of little importance, and my remarks may perhaps appear minute; but as it concerns an entirely new branch of archæology, if I may make use of this term, to denote researches on the monuments of the new world, I have deemed it right to transmit to you a few observations on the subject: if they are just, they may contribute to the understanding and explanation of some

very curious monuments; if they do not appear so to you, the confidence I have in your judgment will dissipate my doubts.

The first object that fixed my attention is the figure of a priestess, or, if you will, an Azteck princess (Plate 1 and 2). You think, that the ignorance of the sculptor has suppressed the arms of this figure; and that he has had the awkwardness, to attach the feet to the sides. I have no higher idea than you of the skill of the statuary; but it appears to me, that this figure, though out of all proportion, is not mutilated. I think I perceive, that the extremities, which you take for feet, are the hands of the statue. It seems to be on its knees, and seated on its legs and heels, ὀκλὰξ καθημένη, Lucian would say *. This resting posture, suggested to men by nature itself, is carefully described by the Greek lexicographers, and particularly affected, in the monuments of the arts, in the figures of women. Hesychius, v. ὀκκύλαι and ὀκλάζειν; and Erotianus in his Lexicon on Hippocrates, v. ὄκλασις; describe this posture by periphrases, which denote the attitude in which a person is seated on his legs and his heels: ἐπὶ τῶν πτερνῶν καθέζεσθαι· ἐπὶ τάσ κνήμας καὶ τὰς πτέρνας κάμψαντα τὰ γόνατα καθίσαι. The learned Hemsterhuis conjectures, that the

* *In Lexiphane.*

primitive verb, which expressed this state of repose, was ὄχειν; and that it was the root of a great number of Greek words, which passed afterward into other languages *. It will be sufficient to cite the words ὄκνος idleness; and οἶκος, a house, so familiar was this position in primitive and almost savage societies to men fatigued, during the peaceful moments they passed in the interior of their rustic retreats.

We see on the monuments of Egypt a great number of women represented in this attitude, either when suckling their children, praying at the feet of their idols, playing on some instrument, or exhibiting signs of affliction, at the funeral of their relations or countrymen †. We find also, on the same monuments, but much less frequently, men in this attitude ‡. We might even be led to think, that the precept of the Pythagoreans, to pray sitting, referred in remoter times only to this posture used in the Egyptian

* See in Hesychius d'Alberti, the notes on the word οἰκίδιον.

† See in the magnificent work, Descripcion de l'Egypte, vol. i, plate 12, No. 2; 62, No. 2; 69, No. 1; 70, No. 2; 81, 96, and elsewhere; and in the Voyage dans la Basse et Haute Egypte, by M. Denon, the pl. 126, 131, et 135.

‡ Sculpture de la Villa Borghese, St. 8, No. 4: Winckelmann, Hist. de l'Art, &c., edition of Rome, tom. i, pl. 6.

rites. It is so natural, especially to women, on account of the suppleness of their limbs, that in several countries of Italy the female peasants assume this posture habitually in the churches. We ought not then to be surprised, that it was in use among the Azteck women. We find it in some of the symbolical paintings of this nation: in the 26th plate, the goddess of water, who throws herself on the earth to drown it, is represented seated on her heels; and several other figures, in other Mexican paintings, are nearly in the same position, except that they have only one knee on the ground. As to what relates to the statue, on which I have now the honor of addressing you, it seems to me, that the back part of this figure (Plate II) furnishes a certain proof of what I have just advanced. We distinctly see the feet, the toes of which are very clearly indicated; they are placed one against the other, and the shading discovers in the drawing (Plate I) the prominence of the knees, concealed under the stiff and plain drapery, which envelops the whole figure.

Not to enlarge farther on this curious specimen of the arts of a nation almost extinct, I shall confine myself to the remark, that the excessive size of the head is a common defect in the greater part of the works of this people. The same defect is very perceptible in the figures sculptured

on the covers of the Etruscan cinerary urns. It appears, that the intention of expressing with more precision and exactness the features of this principal part was the motive, with ignorant artists, to enlarge it to such a degree of exaggeration.

I proceed to another observation, which suggested itself to me from the examination and explanation of one of the hieroglyphic paintings I have just cited, and on which you have read a memoir to our class. The four destructions of the world are there represented (Plate 26). You compare these periods to the four ages of the mythology of the Greeks; and as you find five ages of the world in the traditions of the Aztecks, you endeavour to make this difference disappear, by proving, that the age of brass in Hesiod may easily be divided into two, on account of the two generations which the poet there describes (vol. xiv, p. 31). I would observe, that Hesiod, as well as the Aztecks, counted five ages, reckoning, like them, that which was not yet consummated, and in which he lived. He says in express terms (*Opera et Dies*, v. 174.)

Μήκετ' ἔπειτ' ὤφελον ἐγὼ πέμπτοισι μετεῖναι.

"Oh why did Fate ordain me to be among the men of the fifth age!"

This tradition of the five ages must have been known to the Chaldeans, if we might be permitted to adopt the conjecture of Dante*, that the colossal figure, seen by Nebuchadnezzar † in his dream, referred to this opinion. It was composed of five distinct, and separate kinds of matter: gold, silver, brass, iron, and clay.

I have one more observation to make to you of as little importance as the preceding, respecting the manner in which the Aztecks traced their hieroglyphics. You remark (page 34), that, to facilitate the reading of these figures, and to comprehend them, they sometimes placed at the end of a line the first signs, or rather the first characters, of the hieroglyphic phrase of the following line; and that by these means these first signs are repeated. You compare, on the testimony of Mr. Zoega, this method with that of the Egyptians; who, according to him, made use of the same mode in their hieroglyphic writing. I cannot help observing to you, that my researches have not convinced me of this analogy. If you have no other authority than the passage in p. 464 of the profound work of the Danish antiquary on the obelisks, I must confess, that I give quite another meaning to his expressions; and I must add, that my manner of understanding them

* *Inferno*, c. 14.

† Daniel, c. 2.

seems to be confirmed by the examination of the monuments themselves. Mr. Zoëga, in order to prove, that, in the hieroglyphical writing, the direction in which the figures of men and animals are turned, decides whether the hieroglyphic line ought to be read from the left to the right, or from the right to the left, makes use of certain series of signs, which are repeated in the same monuments, and which are sometimes found traced wholly in the same line, sometimes half in one line and half in another: for instance, in the Sallustian Obelisk * one of these series presents the figure of a dove, followed by those of a beetle and a knife, all in the same line. This series is repeated on the same column, but the hieroglyphics are distributed in two lines. In following the rule proposed by the learned antiquary, the figures are found in the same order, so that the beetle and the knife still follow the dove.

This is what Mr. Zoega says in terms less clear †. But if, in consequence of this remark,

* See in Mr. Zoega's Work, de Origine et Usu Obeliscorum, the plate entitled, Obeliscus Sallustianus Lat. septentrionale.

† *Nam præter quod hac ratione antecedens figura sequenti dorsum obvertere et eam post se relinquere agnoscitur, etiam in repetitis inscriptionibus, dum propter loci angustiam nota aliqua ex superiore spatio ad inferius sit removenda, hoc in ea fieri videmus quæ ex illa nostra sententia ultima erat superioris spatii,* (Zoega loco citato.)

I deprive you of a happy analogy, I will immediately make you amends, by presenting you with a similar analogy in the method followed by the Hebrews in tracing their manuscripts. When they cannot place the whole of a word in one line, they trace the first characters of it at the end of that line, and write it entire in the following; so that these first characters are written twice, exactly as you have remarked in the Azteck manuscripts, or rather paintings. This method has been followed in several editions of the Bible printed in Hebrew, so true it is, that the mind of man, notwithstanding the difference of ages and climate, is disposed to act in the same manner in similar circumstances, without needing the aid either of tradition or of example.

I refer to this same principle the invention of the machine for the production of fire by the friction of two pieces of wood *. It was not Mercury, surely, who taught the use of the *pyreïa*, or the *igniaria*, to the Indians on the banks of the Orinoco. No Greek monument exhibits this custom of heroic times, while you twice give the representation of it in the hieroglyphical paintings of the Aztecks †. Nevertheless it was familiar to the ancient inhabitants of Greece; and the figures you have published prove the accuracy

* Vol. xiii, p. 225, 226.

† Plate 15 No. 8, and plate 47.

of the description, which the scholiast of Apollonius has left us of these machines for kindling fire*. He says, that the upper wood, which turns, resembles a wimble: παραπλήσιον τρυπάνῳ· and such is the idea given by your paintings. No philologist has remarked the allusion, which Apollonius makes in this place to the passage of the Homeric hymn to Mercury. This allusion however seems to me calculated to dispel the doubts, which the learned Rhunkenius has raised respecting the interpolation of this passage †.

The resemblance of the *pyreïa* to the wimble must be referred to the early period of the invention of this tool; and we might be surprised at finding it attributed to Dedalus ‡, who was a contemporary of Theseus, if the invention of the Athenian artist did not agree more exactly with the trepan of sculptors, a much more perfect instrument than the mere wimble, from the rapidity which the cord and the moving traverse give to its motion. This connexion between the pyreïa and the wimble has not escaped the ancient writers, who treat of the culture of trees ‖. They complain, that the action of the borer, employed

* Liv. 1, v. 1184.

† *Ep. crit.* 1, *ad Hymn. in Mercurium*, v. 25.

‡ Pliny, lib. 7, § 57.

‖ Ibidem, lib. 17, §. 25; Columella, lib. 4, v. 29.

in making perforations in them, often burned the wood, and was fatal to the success of the operation. It was to avoid this inconvenience, that the Gauls invented another kind of borer, *(terebra gallica)*, which was a real gimlet, the more regular and less rapid action of which would not occasion combustion. It appears to me, that the commentators of Pliny have hitherto given no just idea, either of the invention of Dedalus, or of the Gallic borer.

Such, my dear Colleague, are the observations which I wish to submit to your judgment. Your friendship, I trust, will consider them as a proof of mine, and of the lively interest which I take in your labours.

E. Q. VISCONTI.

Paris, the 12th of December, 1812.

NOTES

TO

VOLUME THIRTEEN.

PAGE 81. The pyramid of Cholula bore also the names of Toltecatl, Ecaticpac, and Tlachihuatepetl. I presume, that this last denomination is derived from the Mexican verb *tlachiani*, to see around oneself, and *tepetl*, a mountain; because the Teocalli served as a watch tower, to reconnoitre the approach of an enemy in the wars, which were perpetually occurring between the Cholulains and the inhabitants of Tlascala. On the important question, whether the temple, or rather the pyramid with steps, dedicated to Jupiter Belus, had served as a model for the pyramids of Sakhara, and those of India and China, see Julius von Klaproth, *Magasin Asiatique*, tom. 1, p. 486 (in German).

Page 173. It has recently been doubted, whether the Peruvians were acquainted with symbolic paintings, in addition to their *quippus*. A passage taken from the Origen de los Indios del Nuevo Mundo (Valencia, 1610), p. 91, leaves no uncertainty on this point.

After speaking of the Mexican hieroglyphics, P. Garcia adds; "At the beginning of the conquest, the Indians of Peru made their confessions by paintings and characters, which indicated the ten commandments, and the sins committed against these commandments." Hence we may conclude, that the Peruvians made use of symbolical paintings; but that these were more grotesque than the hieroglyphics of the Mexicans, and that the people generally made use of knots, or *quippus*. See also Acosta, Historia natural y moral de las Indias, book, 5, chap. 8, p. 267.

Page 276. The word *atl*, or *atel*, is met with in the east of Europe. According to the observation of Mr. Frederic Schlegel, the country inhabited by the Madjares, before the conquest of Hungary, bore the name of *atelkusu*. Under this denomination were comprised Moldavia, Bessarabia, and Walachia, three provinces bordering on the mouths of the Danube; which, like the Wolga, bore the name of the great water, *atel*. (See vol. xiii, p. 349). The Mexican hieroglyphic of water, *atl*, indicated, by the undulation of several parallel lines, the motion of the waves; and recalls to mind the Phenician character of water, *mem*, which has passed into the Greek alphabet, and by degrees into that of all the western nations. See the ingenious work of Mr. Hug, on the Invention of Letters, 1801, p. 30.

The Chevalier Boturini has transmitted to us the names of the twenty days of a Tolteck month, from the calendar of the inhabitants of Chiapa and Soconusco. The following are the signs, with those corresponding to them in the Azteck Calendar.

Mox.	Cipactli.	*Votan.*	*Calli.*
Igh.	Ehecatl.	Ghanan.	Cuetzpalin.

Abagh.	Cohuatl.	*Been.*	*Acatl.*
Tox.	Miquiztli.	Hix.	Ocelotl.
Moxic.	Mazatl.	Tziquin.	Quauhtli.
Lambat.	*Tochtli.*	Chahin.	Cozcaquauhtli.
Mulu.	Atl.	Chic.	Ollin.
Elab.	Itzcuintli.	*Chinax.*	*Tecpatl.*
Baz.	Ozomatli.	Cahogh.	Quiahuitl.
Enob.	Malincalli.	Aghual.	Xochitl.

We are surprised to find, among nations of the same race, names of a character so different. The terms of Mox, Igh, Tox, Baz, Hix, and Chic, do not seem to belong to America, but to that part of Eastern Asia, which is inhabited by nations, whose languages are monosyllabic. (See vol. xiii, p. 313, and Boturini, Idea de una Historia general de Nueva Espanna, p. 118). We shall on this occasion observe, that the Chinese termination *tsin* is found in a great number of Mexican proper names; for instance, in Tonantsin, Acamapitsin, Coanacotsin, Cuitlahuatsin, and Tzilacatsin.

According to the learned researches of Mr. Klaproth, the Ouigours, or Uighurs, never inhabited the banks of the Selinga, as Mr. Langles admits; but the mountains Ulugh-tagh, the banks of the Ssir, which is the Jaxartes of the Ancients, and the steppe of Kara-Kun, to the east of the lake Aral (See vol. xiii, p. 306, and Hammer, Mines de l'Orient, tom. 2, p. 194).

Page 409. To throw more light on the researches, which form the object of my memoir on the Mexican calendar, I shall here insert the very judicious observations, that have been communicated to me by Mr. Jomard. The name of this distinguished gentleman is well known to those, who study the antiquities of

Egypt*. I here insert an extract of a letter, which he has lately addressed to me.

"*** I have also recognised in your memoir on the division of time among the Mexican nations compared with those of Asia some very striking analogies between the Tolteck calendar and institutions observed on the banks of the Nile. Among these analogies there is one, which is worthy of attention. It is the use of the vague year of 365 days, composed of equal months and of five complementary days, equally employed at Thebes and Mexico, a distance of 3000 leagues. It is true, that the Egyptians had no intercalation, while the Mexicans intercalated 13 days every 52 years. Still farther, intercalation was proscribed in Egypt to such a point, that the kings swore on their accession, never to permit it to be employed during their reign. Notwithstanding this difference, we find a very striking agreement in the length of the duration of the solar year. In reality the intercalation of the Mexicans, being thirteen days on each cycle of fifty-two years, comes to the same thing as that of the Julian Calendar, which is one day in four years; and consequently supposes the duration of the year to be 365 days six hours. Now such was the length of the year among the Egyptians, since the sothic period was at once 1460 solar years, and 1461 vague years; which was in some sort the intercalation of a whole year of 365 days every

* See the interesting memoirs of Mr. Jomard, on the Lake Moeris compared with the lake of Fayoum, on Syene and the cataracts, on the island of Elephantina, on Ombos and its environs, and on the antiquities of Edfou and Hermonthis, making a part of the Description of ancient and modern Egypt, for which we are indebted to the munificence of the French government.

1460 years. The property of the sothic period, that of bringing back the seasons and festivals to the same point of the year, after having made them pass successively through every point, is undoubtedly one of the reasons, which caused intercalation to be proscribed, no less than the repugnance of the Egyptians for foreign institutions. Now it is remarkable, that this same solar year of 365 days six hours, adopted by nations so different, and perhaps still more remote in their state of civilization than in their geographical distance, relates to a real astronomical period, and belongs peculiarly to the Egyptians. This is a point, which Mr. Fourier will ascertain in his researches on the zodiac of Egypt. No one is more capable of deciding this question in an astronomical point of view. He alone can elucidate the valuable discoveries, which he has made. I shall here observe, that the Persians, who intercalated thirty days every hundred and twenty years; the Chaldeans, who employed the era of Nabonassar; the Romans, who added a day every four years: the Syrians, and almost all the nations who regulated their calendar by the course of the Sun; appear to me, to have taken from Egypt the notion of a solar year of 365 days ¼, the use of equal months, and that of the five complementary days. As to the Mexicans, it would be superfluous to examine how they attained this knowledge; such a problem would not be soon resolved: but the fact of the intercalation of thirteen days every cycle, that is, the use of a year of 365 days and ¼, is a proof, that it was either borrowed from the Egyptians, or that they had a common origin. It is also to be observed, that the year of the Peruvians is not solar, but regulated according to the course of the Moon, as among the Jews, the Greeks, the Macedo-

nians, and the Turks. However, the circumstance of eighteen months of twenty days, instead of twelve months of thirty days, makes a very great difference. The Mexicans are the only people, who have divided the year in this manner.

"A second analogy, which I have remarked between Mexico and Egypt, is, that the number of weeks, or half lunations of thirteen days, comprehended in a Mexican cycle, is the same as that of the years of the sothic period; this number is 1461. You consider such a relation as accidental and fortuitous; but perhaps it might have the same origin as the notion of the length of the year. If in reality the year was not of the length of 365 days 6 hours, that is $\frac{1461}{4}$ days, the cycle of fifty-two years would not contain $\frac{52 \times 1461}{4}$, or thirteen times 1461 days; which makes 1461 periods of thirteen days. We must however admit, that these weeks of thirteen days, these *tlalpilli* of thirteen years, this intercalation of thirteen days at the end of the cycle, finally these cycles of four times thirteen years, repose on a first number, which is absolutely foreign to the Egyptian system.

"You have pointed out a fact of more importance, inasmuch as it appertains to the manners of nations, which is the festival of the winter solstice, celebrated equally by the Egyptians and the Aztecks. The former, if we may believe Achilles Tatius, put on mourning, on seeing the Sun descending toward Capricorn, and the decrease of the day; but when the Sun returned toward the Crab, they clothed themselves in white, and decorated themselves with crowns. The custom of the Mexicans, as you have described it, is no doubt analogous with the Egyptian festival. This

cannot be contested, without placing at some other period the beginning of the Mexican year, as many authors have done. But you have rendered it certain, that, at the renewing of the cycle, this beginning fell on the 9th of January, consequently in reckoning 13 intercalary days, and the complementary days with which the festival began, the new fire was kindled at the winter solstice.

"It may be asked, why the phenomenon of the diminution of the days affrighted the Mexicans only once every fifty-two years, as if at the end of a cycle the Sun descended lower than usual. Was it from the omission of a solemnity, that they did not perceive the shortest appearance of the Sun, and that they waited the signal to give themselves up to mourning and terror. I conceive, that, if the festival had taken place every year on the same day, they would have lamented the retreat of the Sun at the moment when it was visibly returning; but in order not to awaken their sorrow at an improper time, it was easy to advance the festival one day every four years, so that in every fifty-two years it would have occupied thirteen different days. This is a difficulty, which I cannot solve with respect to the Egyptians*. Achilles Tatius does not mention the epocha, at which it took place: he makes use only of the vague expression a *day*, ποτε (Uranol. page 146); and adds, that it was at the time of the festivals of Isis, without saying whether the celebration was practised every year. If it had been so, we should have seen, in the course of a sothic

* Geminus pretends, contrary to the opinion of the Greeks, that the festival did not take place on the day of the solstice, and that it ran through the whole of the days of the year successively during a sothic period. (Uranol. p. 34).

period, the Egyptians, from the fear of being deserted by the Sun, give themselves up to grief, tear their hair, and rend their clothes, at the moment when the Sun was in the zenith, and darted its fiercest fires. This is not probable. Achilles Tatius has been too laconic on this point, for us to comprehend this pretended custom of the Egyptians. If the festival took place every year on the same day, it was absurd during fourteen ages and a half of a sothic period; if it took place only on the year of the renewal of the period, why in preference on that year? and finally, if the festival was advanced a day every four years, we must admit, that the Egyptians lamented unnecessarily the approaching disappearance of the Sun, since at Thebes, at the winter solstice, it was at an elevation of about forty degrees.

"You have drawn a comparison between the Mexican years and days, and the names of the signs of the Tartar zodiac and the different zodiacs of the old continent. You have shown, that at Mexico they said, rabbit, tiger, or ape day, &c.; as in Asia they said hare, tiger, and ape month, &c.: you have shown also, that several of these animals are equally unknown in Tartary and in Mexico; and this last remark leaves room to think, that the use of the periodical series for the calculation of time, common to the Mexicans and the Asiatics, as well as these denominations, might come from a very different and very distant country. These questions are highly interesting; but I shall here confine myself to the resemblance of one of the signs of the Aztecks, that of *Cipactli*, with the *Capricorn* of the Greek, or rather Egyptian zodiac: this is the only one of the twenty names of Mexican days that affords this analogy. Is it not remarkable, that

Cipactli is the first sign of the days, as *Capricorn* is at the head of the signs of the zodiac? Whatever be the variation in the order of the signs of the different zodiacs, this analogy of position for the first of the whole appears to be proved; and I think I see in it a confirmation of the origin of the Egyptian zodiac. Whether the colure of the summer solstice has been observed in the first degree of Capricorn or not, it is now certain, that our zodiac, which is that of the Romans and Greeks, and which was copied by them from Egypt, belongs essentially to this last country, and to it alone; and that it cannot possibly be explained, but by making the summer solstice go back as far as Capricorn. Now the rural year of the Egyptians began at the summer solstice. We must not then be surprised, that Capricorn should heretofore have occupied the first place among the dodecatemorions. If we knew at what epoch the year formerly began in Tartary, Thibet, or Japan, we might deduce something analogous from the position of Aquarius at the head of the zodiac among these different nations. In reality, the first sign is the Rat, which corresponds to Aquarius. *Mahara*, the sea-monster of the zodiac of the Hindoos, corresponding to Capricorn, holds in it the second place, which still supposes Aquarius to be the first. Thus the successive positions of the solstitial colure in Aquarius, in Capricorn, and subsequently in Virgo, Leo, and Cancer, would be indicated by the most ancient and authentic monuments, namely, the zodiacs of nations. But I do not insist on this idea, which I am not yet permitted to support by its proofs; I shall only observe, that the placing Capricorn at the head of the signs in Egypt and in Mexico affords an additional analogy between the two countries.

"You have also observed, that the Fishes of the Egyptian zodiac are accompanied by a hog, an animal which in the zodiac of Thibet occupies the place of the constellation of the Fishes; and that Libra answers to the Dragon of the Tartar zodiac; the name of which has its equivalent in *Cohuatl*, or serpent, the name of one of the Mexican days. This sign of the Balance, the antiquity of which has been so unreasonably doubted, is found in the dodecatemorions of the Indians, and in their lunar houses, as well as in the Egyptian zodiac. They who object, that it is not a ζωδιον, seem not to know, that it is always represented by a human figure bearing a pair of scales, as the ear of wheat is borne by the Virgin, and the vessel of water by Aquarius. If the Balance were a sign added by the Romans, who could have sculptured it at Elephanta? It is true, that, before the time of Augustus, the Scorpion occupied the place of two signs by its extent in the zodiac of the Greeks and Romans. Vitruvius is the first writer, in whom we find the word *Libra*. Aratus, Eudoxus, Hipparchus, to denote the sign of the Balance, had made use of the word χηλαι, which signifies *claws* of the Scorpion. But after the conquest of Egypt by Julius Cæsar, the Romans frequently visited that country, where they no doubt observed the Balance on the monuments, and adopted its use. Germanicus, who, according to Tacitus, examined the antiquities of Egypt, translated the poem of Aratus, as Cicero had done; but he did not like him render the word χηλαι by *chelæ*. He made use of the word *libra*; and we find, that Virgil, Manilius, Vitruvius, Hyginus, Macrobius, Festus-Avienus, &c., all posterior to the conquest of Egypt, speak also of the Balance. The same may be said of Ptolemy and

Achilles Tatius. The Chaldeans rather than the Egyptians might be suspected of not having been acquainted with the Balance, since Servius, in his commentary on those well known verses,

Anne novum sidus tardis te mensibus addas, &c.,

observes, that the Chaldeans divided the zodiac into eleven constellations, and the Egyptians into twelve. The commentary of Germanicus puts the question in the clearest light, by showing, that the Balance of the Egyptians was what the Greeks named *chelæ;* and I find that Eratosthenes makes the same remark: χηλαι ὁ εστι ζυγος. Whence could he have taken this similitude, if the Balance did not exist in his time? Eudoxus was a Greek; and, in speaking to Greeks, it was right for him to employ the name of *chelæ*, which was known to them: but Eratosthenes writing in Egypt, and explaining the Greek sphere, could determine to what Egyptian sign this name answered. We also know, from the Zend Avesta, that the ancient Persians were acquainted with the astronomical Balance; and St. Epiphanius says the same of the Pharisiens. What is there in fine more positive, than this passage of Achilles Tatius? "the *chelæ*, which the Egyptians call the Balance." (Uranol., p. 168.) But I should never finish, were I to cite every author. With respect to the monuments, we are so little acquainted with them, and they are so recent, except those of Egypt and India, that they give us no information respecting the antiquity of this asterism; but of this antiquity every thing bears proof. Even at Rome, before the Balance was placed in the heavens, the name was known. Cicero employs the word *jugum;* it is the same with Varro; Geminus makes use of the word ζυγος.

The school of Alexandria was not ignorant of the existence of this sign; but it was necessary to consummate the ruin of Egypt, in order to open in some sort the temples, to procure the knowledge of the Egyptian planisphere, and furnish the image of the Balance, which the Romans have borrowed and transmitted to us.

"If I have limited myself to the antiquity of the sign of the Balance, already demonstrated by others; it is because this point is intimately connected with the system of the Egyptian zodiac; which appears, Sir, not to be your opinion, since you admit rather the antiquity of this asterism in Egypt, than the idea of the motion of those that are fixed. What may be uncertain in the period attributed to the monuments of the Thebaid is the determination of a precise year, and not an approximation to a date within certain limits. We need not be deeply versed in astronomy, to recognise the point of the heavens, or the constellation, which the Sun occupies at the moment of its apogee; but, since this point perpetually changes, it is utterly impossible to depict it at the same place during twenty or forty successive ages. Is it at all surprising that the people, with whom this point constituted the beginning of the year, should denote it successively by the Virgin, the Lion, the Crab, and antecedently no doubt by other signs? I will not on this account deprive the Egyptians of the merit of this discovery, or of every other that has been transmitted to us by the Greeks, so ready in appropriating discoveries to themselves; I wish only to observe, that it was natural for them to mark the opening of their year at the place where they saw it begin.

"You have drawn the attention of the learned to the monument of Bianchini. This planisphere brings to my remembrance, that we saw at Panopolis a similar

zodiac, composed of concentric circles divided into twelve compartments; and which Pocock had cursorily noticed. I had not time to make the excavations necessary in order to take a copy. I saw in it a figure of a bird, such as you remark in the planisphere of Bianchini, where it corresponds with the Ram; while in the Tartarian and Japanese zodiac the bird answers to the Bull. It is possible that this marble, as well as the Isiac table, was sculptured in Egypt, or after an Egyptian work; but it has certainly been so by a foreign artist, and with no great fidelity."

These observations in Mr. Jomard's letter regard several very important points in ancient astronomy: the use of a vague year of 365 days 6 hours, the festivals which are connected with physical phenomena, and the constellations of the solar zodiac. There no doubt exists a species of elementary astronomy, which may be called natural; and which, in the same stage of civilization, must have presented itself to nations among whom no direct communication existed. To this science belong the first notions respecting the number of the full moons corresponding to a solar revolution; the time by which this revolution exceeds 365 days; the 27 or 28 equal parts of the sky, through which the Moon passes during one lunation; the stars that are caused to disappear by the first rays of the Sun; the length of the shadows of a gnomon; and the method of tracing a meridian by the means of corresponding heights, or shadows of equal length. A mark selected at the horizon, a tree, or the summit of a rock, with which the place of the rising or setting Sun is compared; a slight attention to phenomena repeated at short intervals of time; are sufficient to lay the basis of this natural astronomy. (*Fréret, Ouvres complètes*, tom.

12, page 78.) The dodecatemorion of the ecliptic; the lunar houses; intercalations of a day in four years, or of a multiple of these numbers; means tried to conciliate the lunar with the solar almanac, and to make the same terms of the periodical series coincide with the same seasons; the use of gnomons; the importance attached to the periods, when the shadows are longest or shortest; the horrors felt at the end of a great year; the idea of a regeneration at the beginning of a cycle; all these find their source in the observation of the most simple phenomena, and in the individual nature of man.

We must here again observe, that it is very difficult, to distinguish between what nations have taken as we may say from themselves and the objects which surround them, and what has been transmitted to them by other nations advanced in the arts. Hieroglyphics and symbolic writing arise from the need men feel of expressing their ideas by visible figures. A *tumulus* or pyramids are erected by the accumulation of earth and stones, to mark a place of burial. Meanders, labyrinths, zigzags, are found every-where; either because men are generally satisfied with a rhythmic repetition of the same forms, or because they have taken as models the regular figures traced on the skin of large aquatic serpents, or on the shell of the tortoise. A half civilized people, the Araucans of Chili, have a year *(sipantu)*, which exhibits a still greater analogy with the Egyptian year than that of the Aztecks. Three hundred and sixty days are divided into twelve months *(ayen)* of equal duration, to which are added at the end of the year, at the winter solstice *(huamathipantu)*, five complementary days. The *nycthemeræ*, like those of the Japanese, are divided into twelve hours *(elagan-*

tu). It is possible, that the Araucans may have received this division of time from eastern Asia, deriving it from the same source from which the Asiatic cycle of twenty times thirty-seven *sunas*, or sixty years, came to the Muyscas of Cundenamarca; but we find nothing inconsistent with the admission of the calendar of the Araucans having taken its birth in the new continent. Several nations have at first had years only of 360 days; not because solar revolutions had formerly a shorter duration, as we are gravely assured by an estimable writer, Count Carli; but because a stop was made at a round number, the result of a first view of the length of the years. Twelve full moons, observed during the interval of about 360 days, led to months of thirty days; and the complementary days were added on perceiving the confusion arising from the employment of years too short. In the manners and customs of nations, as in the analogy of languages with each other, there are certain marks, by which we directly recognise the identity of origin, or the communications that have existed between one people and another. We conceive, for instance, that the signs of our solar zodiac may have taken their denominations in Egypt, in India, or in some other region watered by great rivers, and placed under the same parallel; but, these denominations once fixed, we can no longer doubt, that the nations, who employ the same asterisms, have received them one from the other. It is thus we distinguish in languages that community of roots, which are as it were the arbitrary signs of things; or those grammatical forms, which seem founded on mere caprice; from whatever is connected with imitative harmony, the structure of our organs, or the nature of our intelligence.

The priests of Heliopolis, consulted by Herodotus, boasted, that the first of all men, the Egyptians, had invented the division of the year into twelve parts. Ἔλεγον ὁμολογέοντές σφισι, πρωτους Αἰγυπτίους ἀνθρώπων ἁπάντων ἐξευρέειν τὸν ἐνιαυτὸν, δυώδεκα μέρεα δασαμένους των ὡρέων ἐς αὐτόν (Herod., Lib. 2, ed. Wessel., p. 104). We think that this invention belongs no more to the Egyptians, than the mode of numeration by groups of five, ten, or twenty, belongs to a single people, by whom it has been transmitted to other nations in very distant countries.

The calendar of the Egyptians, after having been the object of the learned researches of Fréret, de la Nauze, and Bainbridge, has been farther illustrated in our own times by the labors of Mr. Ideler, who unites to a profound knowledge of the ancient languages that of astronomical calculations. We shall not discuss the question whether different calendars, and various modes of intercalation, were in use at the same time on the banks of the Nile, as several learned men have asserted in their interpretation of passages of Theon, Strabo, Vettius Valens, and Horapollo (De la Nauze, Mém. de l'Acad. des Inscript., tom. 14, page 351: Fréret, Ouvres, tom. 10, p. 86; tom. 11, p. 278: Bainbridge, Canicularia, p. 26: Scaliger de Emendat. Tempor, lib. 3, p. 196: Gatterer, Abriss der Chronologie, p. 233: Id. Weltgeschichte bis Cyrus, page 211, 507, and 567: Ideler, Histor. Untersuchungen, p. 100: Rode, ueber Dendera, page 43). We shall confine ourselves here to a few remarks on the movableness of festivals.

In Egypt and Persia, where the vague year was in use; in Greece and in Italy, where imperfect intercalations often deranged the calendar; the festivals con-

nected with physical phenomena must have lost all interest with the people, if they were celebrated sometimes at one season, and sometimes at another. On the banks of the Nile, as well as those of the Tiber, distinctions were doubtless made between the festivals attached to the date of a month (*feriæ stativæ*), and those announced by the priests at the periods pointed out by the motives of their institution. These latter festivals were named among the Romans *feriæ conceptivæ*; and a distinction was made between the *sementivæ*, the *paganalia*, and the *compitalia* (Marini, Atti de Fratelli Arvali, tom. 1, p. 126). In Egypt, the festival of Thoth, which shared with the month of this name the whole of the seasons during the sothic period, did not probably coincide with a festival celebrated in honour of the heliacal rising of Sirius. Is it likely, that processions, in which the emblems of water were the most prominent, took place in times of the greatest drought? The passage of Geminus, it is true, is very explicit: Βούλονται γὰρ (οἱ Αἰγύπτιοι) τὰς θυσίας τοῖς Θεοῖς μὴ κατὰ τὸν αὐτὸν καιρὸν τοῦ ἐνιαυτοῦ γίνεσθαι ἀλλὰ διὰ πασῶν τῶν τοῦ ἐνιαυτοῦ ὡρῶν διελθεῖν, καὶ γίνεσθαι τὴν θερινὴν ἑορτὴν, καὶ χειμερινὴν, καὶ φθινοπωρινὴν, καὶ ἐαρινήν (Elem. Astronom. cap. 6).

Geminus of Rhodes, who lived in the time of Sylla and Cicero, censures Eudoxus, and the Greeks in general, for having supposed, that the feast of Isis corresponded constantly to the winter solstice; while, according to the vague year, it must have run through thirty days in the space of a hundred and twenty years. But if it were admitted, that all the festivals, which correspond to the seasons and the astronomical phenomena, were attached to the dates of the months of Phamenoth, Pachon, or Mechir, what be-

comes of the ingenious explanations given by Plutarch in his treatise de Iside et Osiride, of the motives for which the Egyptians celebrated such a festival in the spring, and another at the summer solstice (Plut. Opera omnia, ed. Reiske, tom. 7, page 446, 452, and 484)? These connexions between the ceremonies celebrated and the physical phenomena, this intimate relation between the symbol and the object, would then have taken place in the first year only of each sothic cycle. The very just observation made by Mr. Jomard on the passage of Achilles Tatius is applicable to all the *stative* festivals. That of Isis, mentioned by Geminus and Plutarch, was a lugubrious festival; and if it was not *conceptive*, it sometimes took place at periods when the days had been for a long time on the increase (Uranol., page 19, nota 35). Does not the oath, which the priests imposed on the king for the preservation of the vague year (Comment. in German. interpret. Arati, sign. Capricorni; Hygin., ed. Basil., 1535, p. 174), betray the craft of a privileged order, which, for the sake of rendering itself necessary to the people, and keeping up its authority, arrogates to itself the right of announcing the festivals connected with astronomical phenomena?

Plutarch, living under the reign of Trajan, already made use of the fixed year of the Alexandrians, according to which, the first of Thoth corresponds to the 29th of August of the Julian calendar (Ideler, Hist. Unt. pag. 127); and he refers the names of the months and the festivals to the immutable epochas of the solstices and the equinoxes. Achilles Tatius, a Christian, and probably a bishop, lived several ages after Plutarch: it is therefore needless to admit, with de la Nauze, the existence of a fixed year under the

Ptolemies, in order to explain why Achilles Tatius speaks of the moans of the Egyptians at the festival of Isis, as a custom immutably connected with the period of the winter solstice. If moreover among the Mexicans we find no renewal of this apprehension of the approaching disappearance of the Sun till after fifty-two vague years, we may no doubt attribute it to the importance which every nation attaches to the end of a great cycle. We observe even at the present time, that the last day of the year bears with it an air of solemnity among nations very remote from superstitious ideas (Oeuvres de Boullanger, 1794, t. 2. p. 61).

In Mexico, as well as at Thebes, the Sun is still considerably elevated at the period when its south declination begins to diminish; and we might say, that the fear of the total disappearance of this luminary ought rather to be excited in those regions of Asia, where Mr. Bailly places the origin of astronomy, than among the nations near the tropic. Nevertheless, it may be conceived how, in a worship, the symbols of which related to the state of the heavens, ideas of a progressive lowering of the Sun, and the shortening the duration of the days, however little apparent these phenomena may be, lead to lugubrious ceremonies, to the expressions of sorrow and of fear.

As to the asterism, to which different nations have assigned, at different periods, the first place in the zodiac, this is one of the most interesting investigations in the history of astronomy. As years begin either by the solstices or by the equinoxes, the order of the signs, or rather the preference given to one of them which opens the march of the asterisms, fixes the date of the origin of the zodiac. Under this point of

view, by the effect of the precession of the equinoxes, the mere series of the signs becomes an unequivocal historical document, if we at the same time suppose, 1st, that the nation, in which this document is found, has not made use of the vague year; 2dly, that it has not thought proper to trace, after systematic ideas, the ancient state of things, the point of departure, the beginning of a cycle. The nations of eastern Asia calculated, by means of tables of no great accuracy, the position of the planets for very remote periods. Their books speak of a conjunction of all the planets, which seems rather the result of their calculation than of observation. Is it not very possible, that a monument may be discovered some day or other in India, on which this conjunction has been traced, without our being obliged for this reason to attribute a high antiquity to such a monument?

No passage in the ancients forms a direct proof, that the Egyptians had any knowledge of the precession of the equinoxes. Hipparchus made this discovery by comparing his observations with those of Timocharis; and it is almost certain, as Mr. Delambre has recently proved, that he made very few if any observations at Alexandria. Though Hipparchus was indebted for nothing to the Egyptian priests, it is nevertheless probable, that the latter would have fixed their attention on the connexion, which exists between the heliacal rising of Sirius and the day of the summer solstice. The difference between them *, in an interval of fourteen

* "The heliacal rising of Sirius was two days distant from the solstice 2782 years before our era; thirteen days distant, 1322 years before it; and 139 years after our era, the difference amounted to twenty-six days; but by happy compen-

hundred years, varied thirteen days. We know too little of the astronomy of the Egyptians, to form an unfavourable judgment of it from the silence of the Greeks, and that of Manetho, who was as little skilled in the accurate sciences, as he was in the laws of versification. This subject, so important to the history of the progress of the human mind, will be soon discussed anew by Mr. Fourier, whose learned researches, so impatiently expected, will be published in the *Description of the Ancient Monuments of Egypt.*

The high antiquity of the Balance advanced by Abbé Pluche in the middle of the last century, though lately contested by two distinguished antiquaries, Testa and Hager, has been demonstrated by the researches of Ideler and Butmann †. I imagine it may be agreeable to those scientific persons, who are engaged in the study of ancient astronomy, to find here a reference to all the passages, that relate to the constellation of the Balance, and which I have carefully verified: Hipparchi Comm. in Arat., lib. 3, c. 2 (Petavii Uranolog., ed. 1703, p. 134); Geminus, Elem.

sations, notwithstanding the precession of the equinoxes, the rising of Sirius remained for 3000 years attached to the same day of the Julian calendar" (Ideler, p. 88 and 90).

† Ideler, Hist. Untersuch., 1806, p. 371; Sternnamen, p. 175; Pluche, Hist. du Ciel (ed. de 1740), tom. 1, p. 21; Montucla, Hist. des Mathem., P. 1, lib. 2, § 7, p. 79; Bailly, Hist. de l'Astr. vol. 1, p. 499 and 501; Schmidt, de Zôd. Origine, p. 54; Asiat. Researches, vol. 2, p. 302; and vol. 9, p. 347; Dupuis, dans la Revue Philos., 1806, Mai, p. 311; Swarz, Rech. sur l'Origine de la Sphère, p. 99; Schaubach, Gesch. der Griech. Astron., p. 242, 296, and 370; Hager, Illustraz. d'uno Zodiaco, p. 25—35; Anquetil, Zend-Avesta, tom. 2, p. 549; Testa, Dissertaz. Sopra due Zodiaci dell' Egitto, 1802, p. 20, 39, and 42; Delambre, Astronomie, tom. 1, p. 478.

Astron., c. 1 and 16 (Uranol., p. 139); Varro de Lingua Latina, lib. 6, c. 2 (Auctores Lat. Linguæ, ed. Gothofred., 1585, p. 48); Cicero de Divin., lib. 2, c. 46 (ed. Jos. Oliveti, 1740, tom. 3, p. 81 and 478); German. Cæsar in Arati Phœn. v. 89 (Hygin. Opera, Bas., 1535, p. 164 and 187); Vitruv. de Architect., lib. 9, c. 4 (ed. Joannis de Laet, Amst., 1649, p. 190); Manil. Astron., lib. 1, v. 609, and lib. 4, v. 203 (ed. Mich. Fayer, tom. 1, p. 77 and 313); Virgi Georg., lib. 1, v. 34; Servius, Comment. in Virg., lib. 5, p. 208 (ed. Pancrat. Mascivii, tom. 1, p. 131); Plin., Hist. Nat., lib. 18, c. 25, sect. 59 (ed. Harduin., 1723, tom. 2, p. 130); Ptolem., lib. 9, c. 7.; Plut. de Plac. phil., lib. 1, c. 6 (ed. Reiske, vol. 9, p. 486); Manethonis Apotelesm., lib. 2, v. 137 (ed. Gronov. 1698, p. 23); Macrob. Comment. in Somnum Scip., lib. 1, c. 19, et Saturn., lib. 1, c. 12 and 22 (Opera omnia, ed. Gronov., 1670, v. 90, 244 and 306); Achilles Tatius, Isagoge, c. 23 et frag. (Uranol., p. 85 and 96); Theon. Comment. in Ptol. (ed. Bas., 1538, p. 386); Martianus Capella de Nupt. Philologiæ et Mercurii, lib. 8 (ed. princeps, 1498, fol. R. 3); Luc. Ampelius liber mem. cap. 2 (ed. Bipontina ad calcem Flori, p. 158); Kircher, Oedip. Ægypt., 1653, tom. 2. p. 206.

Among the ancient writers who mention the sign of the Balance (ζυγὸς, τὰ ζυγὰ, λίτραι, *jugum*, *libra*), the only one anterior to the reform of the calendar by Julius Cæsar is Hipparchus. The passage in the commentary of Hipparchus on Aratus has escaped the learned researches of Abbé Testa, who asserts, that, before Geminus, the word ζυγὸς was unknown to the Greek astronomers. He adds: "Ne tre libri del

commentario d'Ipparco sopra Arato, la libra non comparisce e *non si nomina mai, come ognuno puo assicurarsene da per se* (Testa, del Zodiaco, p. 21 and 46). I ought here to observe, that the passage of Hipparchus, which I have cited, is found in the commentary divided into three books; and not in the fragment, which appears apocryphal, and which is attributed sometimes to Hipparchus, and at other times to Eratosthenes. The words ζυγὸς and *jugum* may, without doubt, denote a couple, whatever is double or paired; but the prose writers in this sense employ rather ζεῦγος than ζυγὸς, and Ptolemy places τὰ ζυγὰ in opposition with χηλαί, which he would not do, if ζυγὸς and ζυγὰ were the explanation of χηλαί. "The star," he says, "which according to them (the Chaldeans) is in the basin of the Scales, and according to our principles (according to our manner of dividing the Zodiac), in the claws of the Scorpion." *

* Ptolem., ed. Bas., p. 232. Theon, in his commentary, often employs, instead of ζυγὸς and τὰ ζυγὰ, the word λίτραι; a substitution, which leaves no doubt of the signification of ζυγὸς. Manetho says, "the claws of the Scorpion, which *the holy men* call the beam of the Scales;" and this passage would be very remarkable, if it were proved that Manetho, the astronomer, is the same person as the author of the Ἀπυοτελεσματικὰ, and that consequently he lived under the reign of Ptolemy Philadelphus. (Fabricii Bibl. Græca, 1795, tom. 4, p. 135—139.) The word ζυγὸς is not found in the asterisms of Eratosthenes (ed. Schaubach, c. 7, p. 6), but in the Commentary on Aratus (Uran. p. 142), which bears falsely the name of this ancient astronomer, and which appears to belong to Achilles Tatius.

NOTES

TO

VOLUME FOURTEEN.

PAGE 4. *Mounds raised by men.* In both Americas it is a matter of inquiry, what was the intention of the natives, when they raised so many artificial hills, several of which appear to have served neither as tombs, nor watch-towers, nor the base of a temple. A custom established in eastern Asia may throw some light on this important question. Two thousand three hundred years before our era, sacrifices were offered in China to the Supreme Being, Chan-ty, on four great mountains called the *Four Yo.* The sovereigns, finding it inconvenient to go thither in person, caused eminences representing these mountains to be erected by the hands of men, near their habitations. Voyage of Lord Macartney, vol. 1, page lviii. Hager, Monument of Yu, 1802, p. 10.

Page 10. *Plain of Tapia, near Lican.* That no erroneous ideas may be entertained respecting the dress of the Indians of the province of Quito, I must here

observe, that this dress is generally black; but persons in tolerable circumstances, for instance, those of the mixed race, wear *ruanas* of striped serge *(listado)*, which cover the Indian tunic, called *capisayo*. These *ruanas* are depicted on the 25th Plate; in order that the figures, detaching themselves from the back ground of the landscape, may serve to vary the aspect. The shape of the garment is very exact, but the colours of the *listado* are too lively in some of the copies.

Page 30. *System of the Hindoos.* I am mistaken in what I have said, on the testimony of some of the *Shastras*, that all the *yougas* of the Hindoos terminated by inundations. Mr. Maier, in his interesting work on the Religious Ideas of Nations, observes, that, according to the doctrine of the Banians, the first generation was destroyed by the waters; and the second perished by the effect of tempests: that in the third age the yawning earth swallowed up the human race;—and that the fourth age will terminate by fire. (Friedrich Maier, Mythologisches Taschenbuch, tom. ii, p. 299; and Allgemeines Mythol. Lexicon, tom. ii, p. 471.) This doctrine, except in the order of the catastrophes, offers a striking analogy with the Mexican tradition.

Page 46. *Tlacahuepancuexcòtzin.* Nothing strikes Europeans more in the Azteck, *Nahuatl*, or Mexican language, than the excessive length of the words. This length does not always depend, as some learned men have pretended, on the circumstance, that the words are compounded, as in the Greek, the German, and the Sanscrit, but on the manner of forming the substantive, the plural, or the superlative. A kiss is called *tetennamiquiliztli*, a word formed from the verb *tennamiqui*, to embrace, and the additive particles *te* and *liztli*. In

the same manner *tlatolana*, to ask, and *tetlatolaniliztli*, a demand; *tlayhiouiltia*, to torment, and *tetlayhiouiltiliztli*, torment. To form the plural, the Aztecks in several words double the first syllable; as *mistli*, a cat, *mimiztin*, cats; *tochtli*, a rabbit, *totochtin*, rabbits. *Tin* is the termination which indicates the plural. Sometimes the duplication is made in the midst of a word; for instance, *ichpochtli*, a girl, *ichpopochtin*, girls; *telpochtli*, a boy, *telpopochtin*, boys. The most remarkable example I have met with of a real composition of words is found in the word *amatlacuilolitquiloatlaxtlahuilli*, which signifies the reward given to the messenger, who carries a paper, on which is indicated, in symbolic characters, or in painting, some tidings to be transmitted. This word, which forms by itself an Alexandrine line, contains *amatl*, paper of the American agave; *cuiloa*, to paint, trace significative characters; and *tlaxtlahuilli*, the payment or salary of a workman. In the Azteck language the letters B, D, F, G, and R are wanting (Carlos de Tapia Zenteno, Cura de Tampamolon, Arte noviesima de Lingua Mexicana, 1753, p. 7). So in the Biscayan language we do not find the letter F, and there is no word which begins by an R. However distinct certain languages appear at first sight, however extraordinary their caprices or idioms, all have an analogy with each other; and these multifarious relations will be perceived, in proportion as the philosophic history of nations, and the study of languages, which are at once the production of the intelligence, and the expression of the individual character of man, shall be brought to perfection.

Page 63. *First age of the Earth.* The Franciscan monk, Andres de Olmos, well versed in the different languages of Mexico, of which he composed gram-

mars, has left a very curious account of the cosmogony of Anahuac. (Marieta, Tercera Parte de la Historia Eclesiastica, 1596, pag. 48.) The god Citlalatonac was united to the goddess Citlalicue: the fruit of this union was a stone, a flint, *tecpatl*, which fell on the Earth, near a place called the Seven Caverns, *Chicomoztoli*. This *betylium* is found among the hieroglyphics of the years and the days. It was an aerolite, a divine stone, a *teoteti*, which, in breaking, produced 1600 subaltern divinities, inhabitants of the Earth, who, finding themselves without slaves to serve them, obtained from their mother the permission of creating men. Citlalicue ordered Xolotl, one of the gods of the Earth, to go down to Hell in search of a bone; and this bone, broken like the aerolite, or *tecpatl*, gave birth to mankind. (Torquemada, T. ii, p. 82.) According to this same tradition, the first man, *Iztacmixcuatl*, or *Iztacmixcohuatl*, dwelt at Chicomoztotl, where he attained a very advanced age. His wife, *Ilancueitl*, bore him six sons, from whom descended all the nations of Anahuac. *Xelhua*, the oldest of his sons, peopled Quauhyuechola, Tzoca, Epatlan, Teopantla, Tehuacan, Cozcatla, and Totetlan. *Tenuch*, the second, was the father of the Tenuches, or Mexicans properly so called. *Ulmecatl* and *Xicalancatl*, from whom descended the Olmecks and the Xicalancks, peopled the environs of Tlascala, Cuatzacualco, and Totomihuacan. *Mixtecatl* and *Otomitl* became the chiefs of the Mixtecks and the Otomites. (Torquemada, T. i, p. 34 and 35.) This genealogy of the nations reminds us of the ethnographical table of Moses; and it is so much the more remarkable, as the Toltecks and the Aztecks, among whom this tradition is found, considered themselves as belonging to a privileged race, very different

from that of the Otomites and the Olmecks. This is an attempt to reduce to a general principle the diversity of languages, and explain it by the common origin of all nations.

Page 66. *Going out from Aztlan.* To facilitate the reading of this work, respecting the monuments of the ancient people of Mexico, I shall in this place insert a fragment, taken from a Sketch of the History of Anahuac, which I began to compose during my abode in Mexico. This fragment will be useful to those who, not having leisure to recur to the original sources of information, must satisfy themselves with the study of Robertson's History of America, admirable for the sagacity with which it has been compiled; but too much abridged in the part relating to the Toltecks and Aztecks. I have carefully cited the authors, whom I have consulted for the indication of the dates.

Chronological Table of the History of Mexico.

The mountainous region of Mexico, like Caucasus, was inhabited from the most remote period by a great number of nations of different races. A part of these nations may be considered as the remains of numerous tribes, which, in their migrations from the north to the south, had traversed the country of Anahuac; and of which some families, retained by an attachment to the soil they had cleared, had separated from the body of the nation, preserving their language, their manners, and the primitive form of their government.

The most ancient nations of Mexico, those who considered themselves as *autochthones*, are the Olmecks, or Hulmecks, who extended their migrations to the gulf of Nicoya, and to Leon de Nicaragua; the Xicalancks; the Cores, the Tepanecks, the Tarascks, the Miztecks, the Tzapotecks, and the Otomites. The Olmecks and the Xicalancks, who inhabited the elevated plain of Tlascala, boasted of having vanquished or destroyed on their arrival the giants, or *quinametin*; a tradition founded probably on the appearance of the fossil bones of elephants found in those elevated regions of the mountains of Anahuac (Torq. tom. i, p. 37 and 364). Boturini asserts, that the Olmecks, driven out by the Tlascaltecks, peopled the West India islands and South America.

The Toltecks, migrating from their country, Huehuetlapallan, or Tlapallan, in the year 544 of our era, arrive at Tollantzinco, in the country of Anahuac, in 648; and at Tula, in 670. Under the reign of the Tolteck king Ixtlicuechahuac, in 708, the astrologer Huematzin composed the celebrated *Divine Book*, the *Teo-amoxtli*, which contained the history, the mythology, the calendar, and the laws of the nation. The Toltecks also appear to have constructed the pyramid of Cholula, on the model of the pyramids of Teotihuacan; which last are the most ancient of all, and Siguenza believes them to be the work of the Olmecks (Clav., tom. i, p. 126, and 129; tom. iv, p. 46).

It was in the time of the Tolteck monarchy, or in ages anterior to it, that the Mexican Budha, *Quetzalcohuatl*, appeared; a white man, bearded, and accompanied by other strangers, who wore black garments, in the form of cassocks. Till the 16th century, the people wore these dresses of Quetzalcohuatl, to dis-

guise themselves on festivals. The name of this saint was *Cuculca*, in Yucatan, and *Camaxtli* at Tlascala (Torq. t. 2, p. 55, and 307). His cloak was spotted with red crosses. High priest of Tula, he founded religious congregations. "He ordained sacrifices of flowers and fruits, and stopped his ears when he was spoken to of war." His fellow adventurer, *Huemac*, was in possession of the secular authority, while he himself enjoyed the spiritual power. This form of government was similar to those of Japan and of Cundinamarca (Torq. tom. 2, p. 237): but the first monks, Spanish Missionaries, have gravely discussed the question, whether Quetzalcohuatl, was a Carthaginian or an Irishman. From Cholula he sent colonies to Mixteca, Huaxayacac, Tabasco, and Campeachy. It is supposed, that the palace of Mitla was built by order of this unknown personage. At the time of the arrival of the Spaniards, certain green stones, which had belonged to Quetzalcohuatl, were preserved as precious relics at Cholula; and F. Toribio de Motilinia beheld sacrifices offered in honor of the saint on the summit of the mountain of Matlalcuye, near Tlascala. The same monk was present at Cholula, at ceremonies ordered by Quetzalcohuatl, in which the penitents scarified their tongue, ears, and lips. The high priest of Tula had made his first appearance at Panuco: he left Mexico, with the intention of returning to Tlalpallan; and it was in this journey that he disappeared, not in the north, as might have been supposed, but in the east, on the banks of the Rio Huasacualco (Torq. tom. 2, p. 307—311). The nation expected his return during a number of ages. "When, on my arrival in Tenochtitlan, I passed by Xochimilco," says the monk, Bernard de Sahagun, "every

person asked me whether I came from Tlalpallan. I did not then understand the meaning of this question; but I afterward knew, that the Indians took us for the descendants of Quetzalcohuatl". (Torq. tom. 2, p. 53). It is no doubt interesting to treasure up the most minute circumstances relative to the life of this mysterious personage, who, belonging to the heroic times, was probably anterior to the Toltecks.

Pestilence and destruction of the Toltecks in 1051. They push their migrations farther to the south. Two children of the last king, and some Tolteck families, remain in the country of Anahuac.

The Chichimecks, issuing from their country Amaquemecan, arrive in Mexico in 1170.

Migration of the Nahuatlacks (Anahuatlacks) in 1178. This nation contained the seven tribes of Sochimilcks, Chalcks, Tepanecks, Acolhuans, Tlahuicks, Tlascaltecks, or Teochichimecks, and Aztecks or Mexicans, who, as well as the Chichimecks, all spoke the Tolteck language (Clav., tom. 1, p. 151, tom. 4, p. 48). These tribes called their country Aztlan, or Teo-Acolhuacan, and declared it to be near Amaquemecan (Garcia, Origen. de los Indios, p. 182 and 502). The Aztecks had migrated from Aztlan, according to Gama, in 1064; according to Clavigero, in 1160. The Mexicans, properly so called, separated themselves from the Tlascaltecks and the Chalcks in the mountains of Zacatecas (Clav., tom. 1, p. 156; Torq. tom. 1, p. 87; Gama, Descripcion de dos Piedras, p. 21).

Arrival of the Aztecks at Tlalixco, or Acahualtzinco, in 1087; reform of the calendar, and first festival of the new fire, since the going out from Aztlan, in 1091.

Arrival of the Aztecks at Tula, in 1196; at Tzompanco, in 1216; and at Chapoltepec, in 1245.

"Under the reign of Nopaltzin, king of the Chichimecks, a Tolteck, called Xiuhtlato, lord of Quaultepec, taught the people, about the year 1250, the culture of maize and cotton, and the making of bread from the flour of maize. The small number of Tolteck families, that dwelt along the banks of the lake Tenochtitlan, had entirely neglected the culture of this grain; and the American corn would have been for ever lost, if Xiuhtlato had not preserved a few seeds from his early youth" (Torq., tom. 1, p. 74).

Union between the three nations of the Chichimecks, the Acolhuans, and the Toltecks. Nopaltzin, son of the king Xolotl, weds Azcaxochitl, daughter of a Tolteck prince; Pochotl, and the three sisters of Nopaltzin, form matrimonial alliances with the chiefs of the Acolhuans. Few nations exist, whose annals offer so great a number of names of families and places as the hieroglyphic annals of Anahuac.

The Mexicans fall under the yoke of the Acolhuans in 1314, but soon succeed in freeing themselves by their valor.

Foundation of Tenochtitlan, in 1325.

Mexican kings: 1, Acamapitzin, 1352-1389: 2, Huitzilihuitl, 1389-1410: 3, Chimalpopoca, 1410-1422: 4, Itzcoatl, 1423-1436: 5, Motezuma-Ilhuicamina, or Motezuma, the first, 1436-1464: 6, Axajacatl, 1464-1477: 7, Tizoc, 1477-1480: 8, Ahuitzotl, 1480-1502: 9, Motezuma-Xocojotzin, or Motezuma the second, 1502-1520: 10, Cuitlahuatzin, whose reign lasted only three months: 11, Quauhtemotzin, who reigned during nine months of the year 1521 (Clav., tom. 4, p. 55-61).

Under the reign of Axajacatl, died Nezahualcojotl, king of Acolhuacan, or Tezcuco, equally memorable for the improvement of his mind, and the wisdom of his legislation. This king of Tezcuco had composed, in the Azteck language, sixty hymns in honor of the Supreme Being, an elegy on the destruction of the city of Azcapozalco, and another on the instability of human greatness, as proved by the fate of the tyrant Tezozomoc. The great nephew of Nezahualcojotl, baptized under the name of Ferdinand Alba Ixtilxochitl, has translated a part of these verses into Spanish; and the Chevalier Boturini possessed the original of two of his hymns, composed fifty years before the conquest, and written in the time of Cortez, in Roman characters, on paper of *metl*. I have sought these hymns in vain among the remains of the Boturini collection, preserved in the palace of the viceroy of Mexico. It is well worthy of remark, that the celebrated botanist Hernandez has made use of several of the drawings of plants and animals, with which king Nezahualcojotl had ornamented his palace at Tezcuco, and which had been made by Azteck painters.

Arrival of Cortez on the shore of Chalchicuecan, in 1519.

Taking of the city of Tenochtitlan, in 1521.

The Counts of Motezuma and of Tula, residing in Spain, trace their descent from Ihuitemotzin, grandson of the king Motezuma-Xocojotzin, who had married Donna Francisca de la Cueva. The illustrious houses of Cano-Motezuma, Andrade Motezuma, and the Count of Miravalle (at Mexico), derive their origin from Tecuichpotzin, daughter of the king Motezuma-Xocojotzin. This princess, baptized under the name

of Elizabeth, survived five husbands, among whom are numbered the last two kings of Mexico, Cuitlahuitzin, and Quauhtemotzin, and three Spanish officers.

Page 83. *Cihuacohuatl.* Mr. Maier thinks, that this figure of the mother of mankind, as well as that delineated in the 13th plate, refer to the history of *Ata-Entsik* and his two little children, *Juskeka* and *Tahuitzaron*, celebrated among the Hurons and the Iroquois. Mytholog. Taschenb., tom. 2, p. 241, and tom. 2, p. 294. (Creuxius, Hist. Canad. Seu Novæ Franciæ, 1664, lib. 1, p. 79.)

Page 85. *Shape of the forehead.* The head of Teocipactli, plate 37, No. 6, has a singular resemblance to that represented in the 11th plate. According to the accounts received from Mexico, since the publication of the first plate of this work, this remarkable sculpture was not found at Oaxaca, as I mistakenly asserted (vol. xiii, p. 126—134), but farther to the south, near Guatimala, the ancient *Quauhtemallan*. This circumstance tends still farther to remove the doubts, that might be entertained respecting the origin of so strange a monument. Besides, the ancient inhabitants of Guatimala were a highly cultivated people, as is proved by the ruins of a great city, situate in a place which the Spaniards call *el Palenque*.

Page 125. *The hieroglyphics of numbers.* Mr. Gatterer, in the abstract of his Universal History, attributes to the Phœnicians and Egyptians the admirable invention of expressing tens by the position of the ciphers. He positively asserts, that, in the Egyptian manuscripts written in cursive characters, nine letters of the alphabet are recognised indicating nine units; and a tenth sign, performing the office of the nought of

the Hindoos and the Thibetans. The same writer asserts, that Cecrops and Pythagoras were acquainted with this system of Egyptian numeration; and that it took its origin from the lineary hieroglyphical arithmetic, in which perpendicular strokes have a value of position, while several rows of horizontal bars denote tens, and the multiples of ten (Gatterer, Weltgeschichte bis Cyrus, p. 586). According to this hypothesis, the notation peculiar to the Hindoos would have been introduced for the second time into Europe by the Arabians; but these assertions do not seem to rest on very solid foundations (Kircher, Obel. Pamph., p. 461). We know, that among the Romans, whose numerical system is infinitely more imperfect than that of the Greeks, the unit changes its value according as it is placed before or after the signs of five or of ten. A real value of position is found in the notation, which, according to Pappus, Apollonius made use of for the myriads, (Delambre, Arith. des Grecs dans les Oeuvres d'Archimède, 1807, p. 578): but none of the nations, of which we have authentic accounts, appear to have attained this simple and uniform method, which was followed from remote antiquity by the Hindoos, the Thibetans, and the Chinese.

Page 128. *Twelve Sunas.* The inhabitants of Otaheite divide the year, not into twelve, but into thirteen months, or moons, to which they give the names of the sons of the Sun (Missionary Voyage to the Pacific Ocean, 1799, p. 341—344). This division by thirteen is very extraordinary no doubt; but we know, that people far advanced in civilization have long stopped in their calendar at numbers the least fitted for the division of time. See the valuable researches of Mr. Nie-

buhr, on the Roman and Etruscan year (Rœmische Geschichte, tom. i, p. 91 and 192).

Page 144. *Complete notice of the Paintings.* It is remarkable enough, that a Franciscan monk, Torquemada, should have branded as a barbarian bishop Zumaraga, too notorious for the destruction of the historical paintings of the Aztecks (Mon. Ind., tom. i, p. 276). One of the writers in the Literary Gazette of Gottingen (1811, p. 1553) asserts, that there exist five Mexican manuscripts in the Bodleian Library at Oxford (Monthly Mag., vol. ii, p. 337). The same writer, in giving an account of my researches on the monuments of the natives of Mexico, compares the figure represented in the 1st and 2d plate to the head engraved in Tassie, Cat. vol. vii, p. 248.

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on 07 April, 2016